

Arcadia Design Lighting Co., LTD

TEST REPORT

SCOPE OF WORK

Test Report

REPORT NUMBER

260119030SZN-001

ISSUE DATE

30-Jan-2026

REVISION DATE

None

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DOCUMENT CONTROL NUMBER

Special Test Report_ A

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Report No.: 260119030SZN-001

TEST REPORT

Applicant	:	Arcadia Design Lighting Co., LTD
Address	:	Room 303, Building 1, Plant No.41, Changping Section, Dongshen Road, Changping Town, Dongguan City, Guangdong Province, China
Product Description		

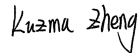
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Name of Product	: Portable Lamp																																												
Product description	: The product covered by this report is portable luminaire for dry location use only, they are provided with a flexible cord terminated with 1-15P polarized plug.																																												
	120VAC, 60Hz;																																												
	<table border="1"> <thead> <tr> <th>Model No.</th> <th>Ratings</th> </tr> </thead> <tbody> <tr> <td>CX00021, T006B, CX00021-BS, T006G</td> <td>E26, 1 x Max. 60W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>AF49481BK, T001B, AF49481WH, T001W</td> <td>E26, 1 x Max. 40W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>AF36699SBK, F001B, AF36699SSN, F001S</td> <td>E26, 1 x Max. 100W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED</td> </tr> <tr> <td>CX00002BK, F002, CX00002SL, F002SL</td> <td>E26, Up: 1 x Max. 100W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED; E26, Down: 1 x Max. 40W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>CX00006BS, F006, CX00006BW, F006BW</td> <td>E26, 1 x Max. 150W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED</td> </tr> <tr> <td>CX00015, F003</td> <td>E26, 2x Max. 40W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>CX00016, F004</td> <td>E26, 2x Max. 40W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>CX00017, F005</td> <td>E26, 2x Max. 40W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>CX00029, F015, CX00029BS, F0029BS</td> <td>E26, 1 x Max. 150W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED</td> </tr> <tr> <td>CX00031BS, F012S, CX00031BW, LH-F012B</td> <td>E26, 1 x Max. 100W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED</td> </tr> <tr> <td>CX00003WL, F007</td> <td>E26, 1 x Max. 150W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED</td> </tr> <tr> <td>CX00038SN, F038SN, CX00038BW, F038BW</td> <td>E26, 1 x Max. 150W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED</td> </tr> <tr> <td>HD00039BW, CX00039BW, HD00039BS, CX00039BS</td> <td>E26, 1 x Max. 40W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>HD00048BK, F040BK, HD00048SN, F040BS</td> <td>E26, 1 x Max. 100W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED</td> </tr> <tr> <td>CX00028-F, LH00028-F, CX00028S-F, LH00028S-F</td> <td>E26, 1 x Max. 150W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED</td> </tr> <tr> <td>CX00026, F026</td> <td>E26, 1 x Max. 60W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>CX00007BW, LH00007BW, CX00007BS, LH00007BS</td> <td>E26, 1 x Max. 150W type A incandescent bulb or Max. 25W self-ballasted CFL or Max. 25W listed SBLED</td> </tr> <tr> <td>CX00004-SN, F004SN, CX00004-BK, F004B, CX00004-SL, F004S, CX00004-GO, F004GO</td> <td>E26, 5 x Max. 40W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>CX00020, F009</td> <td>E26, 1 x Max. 60W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td>F9007</td> <td>E26, 2 x Max. 40W type A incandescent bulb or Max. 15W self-ballasted CFL or Max. 10W listed SBLED</td> </tr> <tr> <td></td> <td>For models AF49481BK, T001B, AF49481WH, T001W: USB 5V 1A, receptacle 120Vac, 8A For models AF49481BK, T001B, AF49481WH, T001W, CX00029, F015, CX00029BS, F0029BS: Max. 1.5 lb. 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<p><i>Model differences</i> :</p>	<p>All models have same electrical and mechanical constructions, differences among them are outlook, size, electrical ratings and with or without receptacle and USB output.</p> <p>Models CX00006BS and CX00006BW were identical except base and color.</p> <p>Alternative models were identical to basic model except for model name and body color.</p> <table border="1" data-bbox="363 801 1506 1861"> <thead> <tr> <th>Basic Model No.</th> <th>Alternative model No.</th> </tr> </thead> <tbody> <tr> <td>CX00021</td> <td>T006B, CX00021-BS, T006G</td> </tr> <tr> <td>AF49481BK</td> <td>T001B, AF49481WH, T001W</td> </tr> <tr> <td>AF36699SBK</td> <td>F001B, AF36699SSN, F001S</td> </tr> <tr> <td>CX00002BK</td> <td>F002, CX00002SL, F002SL</td> </tr> <tr> <td>CX00006BS</td> <td>F006</td> </tr> <tr> <td>CX00006BW</td> <td>F006BW</td> </tr> <tr> <td>CX00015</td> <td>F003</td> </tr> <tr> <td>CX00016</td> <td>F004</td> </tr> <tr> <td>CX00017</td> <td>F005</td> </tr> <tr> <td>CX00029</td> <td>F015, CX00029BS, F0029BS</td> </tr> <tr> <td>CX00031BS</td> <td>F012S, CX00031BW, LH-F012B</td> </tr> <tr> <td>CX00003WL</td> <td>F007</td> </tr> <tr> <td>CX00038SN</td> <td>F038SN, CX00038BW, F038BW</td> </tr> <tr> <td>HD00039BW</td> <td>CX00039BW, HD00039BS, CX00039BS</td> </tr> <tr> <td>HD00048BK</td> <td>F040BK, HD00048SN, F040BS</td> </tr> <tr> <td>CX00028-F</td> <td>LH00028-F, CX00028S-F, LH00028S-F</td> </tr> <tr> <td>CX00026</td> <td>F026</td> </tr> <tr> <td>CX00007BW</td> <td>LH00007BW, CX00007BS, LH00007BS</td> </tr> <tr> <td>CX00004-SN</td> <td>F004SN, CX00004-BK, F004B, CX00004-SL, F004S, CX00004-GO, F004GO</td> </tr> <tr> <td>CX00020</td> <td>F009</td> </tr> </tbody> </table>	Basic Model No.	Alternative model No.	CX00021	T006B, CX00021-BS, T006G	AF49481BK	T001B, AF49481WH, T001W	AF36699SBK	F001B, AF36699SSN, F001S	CX00002BK	F002, CX00002SL, F002SL	CX00006BS	F006	CX00006BW	F006BW	CX00015	F003	CX00016	F004	CX00017	F005	CX00029	F015, CX00029BS, F0029BS	CX00031BS	F012S, CX00031BW, LH-F012B	CX00003WL	F007	CX00038SN	F038SN, CX00038BW, F038BW	HD00039BW	CX00039BW, HD00039BS, CX00039BS	HD00048BK	F040BK, HD00048SN, F040BS	CX00028-F	LH00028-F, CX00028S-F, LH00028S-F	CX00026	F026	CX00007BW	LH00007BW, CX00007BS, LH00007BS	CX00004-SN	F004SN, CX00004-BK, F004B, CX00004-SL, F004S, CX00004-GO, F004GO	CX00020	F009
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<p><i>Date of Receival</i> :</p>	<p>19-Jan-2026</p>																																										

<i>Date of test Conducted</i>	: 19-Jan-2026 to 29-Jan-2026
Test	
<i>Test Requested</i>	: Test according to standards: Portable Electric Luminaires [UL 153:2014 Ed.13+R:24Feb2025] Portable Luminaires [CSA C22.2#250.4:2023 Ed.3+E1]
<i>Test Conclusion:</i>	: The products complied with the requirements listed in <u>Test Requested</u> .
<i>Other information</i>	: NA
General Remark:	
<ul style="list-style-type: none"> • This test report is only for evaluation of the specified standard clauses listed in <u>Test Requested</u>. • When determine the test result, measurement uncertainty has been considered. • Manufacturing site: Same as Applicant 	

Tested by:



Kuzma Zheng
Project Engineer

Approved by:



Janis Ou
Asst. Technical Manager

Test Results:

Portable Electric Luminaires [UL 153:2014 Ed.13+R:24Feb2025]		
Clause	Description Requirement	Verdict
144-148	Normal Temperature Test	P
153	Stability Test	P
154	Strain Relief Test	P
157	Power-Supply Cord Twist Test	P
159	Dielectric Voltage-withstand Test	P
184	Assembly and Installation Test	P
Portable Luminaires [CSA C22.2#250.4:2023 Ed.3+E1]		
15	Normal Temperature Test	P
17.102	Stability Test	P
17.21	Strain Relief Test	P
18.1	Dielectric Voltage-withstand Test	P
17.4	Mold Stress Relief Test	P
17.20	Movable Joint Torsion And Pull Test	P
17.41	Polymeric impact	P
17.7	Glow-wire Test	P
Polymeric Materials - Use in Electrical Equipment Evaluations [UL 746C:2018 Ed.7+R:17Mar2023]		
56	Resistance to Impact Test	P
61	Mold Stress-Relief Distortion Test	P
Possible test case verdicts:		
- test case does not apply to the test object..... :		N/A
- test object does meet the requirement..... :		P (Pass)
- test object does not meet the requirement :		F (Fail)

UL 153 – Portable Electric Luminaires			
Clause	Requirement - Test	Result – Remark	Verdict
INTRODUCTION			
1	Scope		Info
2	Glossary		Info
3	Organization and Application		Info
4	Components		P
5	Units of Measurement		Info
6	Undated References		Info

PART I – CONSTRUCTION			
MECHANICAL CONSTRUCTION - GENERAL			
7	General		Info
8	Assembly and packaging		P
9	Enclosures		P
10	Metal thickness for enclosures		P
11	Corrosion protection		P
12	Polymeric Enclosures		P
13	Decorative Parts		P
14	Enclosure openings		P
15	Wireways and tubing		P
16	Shade Construction		P
17	Strain relief		P
18	Portable luminaires having play value		N/A
19	Resistance to liquid damage		N/A
20	Portable luminaire containing hazardous substance		N/A
20A	Plant Luminaires		N/A
20A.1	General		N/A
20A.2	Resistance to moisture		N/A
20A.3	Resistance to chemicals		N/A
20A.4	Lamp replacement		N/A
ELECTRICAL CONSTRUCTION - GENERAL			
21	General		P
22	Assembly and packaging		P
23	Accessibility of live parts		P
24	Electrical spacings (Limit: Cl.≥ 6.4mm; Cr.≥9.5mm)		P
25	Insulating materials		P

26	Electrical rating		P
27	Wiring and conductors		P
27.1	Conductor size		P
27.2	Temperature rating		P
28	Splices and connections		P
29	Wiring attached to movable or flexible parts		P
30	Protection of wiring		P
31	Power-supply cords		P
32	Attachment plugs		P
33	Interconnected units		N/A
34	Alternative power-supply connections		N/A
35	Polarization and identification		P
36	Grounding and bonding		NA
37	Electronic circuits		N/A
38	Secondary low voltage circuits		N/A
39	Separation of secondary circuit conductors		N/A
40	Separation of communication circuit conductors		N/A
41	Component mounting		P
42	Lampholders		P
42.1	General		P
42.2	Incandescent lampholders		P
43	Switches and dimmers		P
44	Receptacles		P
44.1	convenience receptacle provided on a portable luminaire shall be of the same type and configuration as the attachment plug of the unit, and shall be wired such that it provides the same polarized or grounded supply as the attachment plug of the unit. See Figure 32.1.		P
44.2	A portable luminaire is permitted to include one or more convenience-. The electrical rating of each receptacle shall be marked in accordance with 198.6.2.		P
44.3	When the face of a receptacle is less than 5/8 inch (15.9 mm) wide or less than 7/8 inch (22.2 mm) long, the face of the receptacle shall project not more than 3/16 inch (4.8 mm) from the part of the mounting surface that is within a rectangle 7/8 inch (22.2 mm) long and 5/8 inch (15.9 mm) wide symmetrically located about the receptacle contacts; and when the mounting surface is conductive, the face of the receptacle shall project not less than 3/32 inch (2.4 mm) from that part of the mounting surface.		N/A

44.4	The area surrounding a convenience receptacle shall be free of any projection that prevents full insertion of the blades of an attachment plug having a face diameter of 1-15/16 inches (49.2 mm) and rectangular attachment plug having a face of 1-1/2 by 1-5/8 inch (38.1 by 41.3 mm). Exception: Projections that prevent the blades of the attachment plug from making electrical contact with the female contacts of the receptacle meet the intent of the requirement.		P
45	Transformers		N/A
46	Motors		N/A
46A	Overcurrent Protection		N/A
47	Portable Luminaires or a product accessory with Batteries		N/A
INCANDESCENT UNITS - SUPPLEMENTARY			
48	General		Info
49	Temperature test-exempt units		—
49.1	General		N/A
49.2	Determination of temperature test-exempt status		N/A
49.3	Shade Designation		N/A
49.4	Lamp-to-shade spacing		N/A
49.5	Wire insulation temperature rating		N/A
49.6	Other shade designs		N/A
50	Incandescent torchiere guard		N/A
51	Tests		P
51.1	Normal temperature test		P
51.2	Incandescent torchiere abnormal operation tests		N/A
52	Markings		P
53	Instructions		P
TUNGSTEN HALOGEN UNITS - SUPPLEMENTARY			
54	General		Info
55	Construction - Mechanical		—
55.1	General		N/A
55.2	Guard		N/A
55.3	Guards for torchiere style units		N/A
55.4	Lamp containment barrier		N/A
55.5	Ultraviolet (UV) filter		N/A
55.6	Flexible or articulated arms		N/A
56	Construction - Electrical		N/A
56.1	Switches		N/A
56.2	Interlock switch		N/A

56.3	Automatic temperature-regulating or limiting control		N/A
56.4	Tipover switch		N/A
57	Tests		N/A
57.1	Normal temperature test		N/A
57.2	Tungsten-halogen lamp adjacent surfaces and overlamping abnormal operation tests		N/A
57.3	Tungsten-halogen torchiere abnormal operation tests		N/A
57.4	Guard, lamp containment barrier & UV filter security tests		N/A
57.5	Polymeric lamp containment test		N/A
57.6	Interlock switch test		N/A
58	Marking		N/A
59	Instructions		N/A
FLUORESCENT UNITS - SUPPLEMENTARY			
60	General		Info
61	Construction - Electrical		—
51.1	Ballasts		N/A
51.2	Lampholder		N/A
56.3	Wire temperature ratings		N/A
62	Tests		—
62.1	Normal temperature test		N/A
62.2	Abnormal operation shorted starter test		N/A
63	Temperature test-exempt test units		N/A
64	Marking		N/A
HIGH INTENSITY DISCHARGE UNITS - SUPPLEMENTARY			
65	General		Info
65	Construction - Mechanical		—
66.1	Metal halide lamp containment and UV filter		N/A
67	Construction - Electrical		N/A
67.1	Lampholders		N/A
67.2	Ballasts		N/A
67.3	Capacitors		N/A
67.4	Nonintegral oil-filled capacitors		N/A
68	Tests		—
68.1	Normal temperature test		N/A
68.2	Glass impact test		N/A
68.3	Glass thermal shock/containment test		N/A
69	Marking		N/A

LED PORTABLE LUMINAIRES WITH SMALLER THAN 18 AWG POWER SUPPLY CORD – SUPPLEMENTARY			
69A	General		Info
69A.1	<p>The requirements specified in Sections 69A – 69C apply to LED portable luminaires employing 20 or 22 AWG power supply cord, where the following Portable Luminaire types are excluded:</p> <ul style="list-style-type: none"> a) Interconnecting units – as specified in Section 33; b) Units with Receptacles – as specified in Section 44; c) Units with facility for Grounding and Bonding – as specified in Section 36; d) High Intensity Discharge units – as specified in Sections 65 – 69; e) Units for use with office furnishing – as specified in Sections 90 – 94; f) Convertible units – as specified in Sections 95 – 99; g) Interchangeable units – as specified in Sections 100 – 103; h) Track-style units – as specified in Sections 104 – 109; i) Portable Work Lights – as specified in Sections 125 – 129; j) Wet location use – as specified in Sections 130 – 135; k) Portable Hand lights – as specified in Sections 136 – 142; and l) Units with supplementary circuit output connectors (for example, a USB-compliant [type A, type B, or USB-C] connector port) and induction power transmitters. 		N/A
69A.2	These requirements are supplementary to other applicable requirements in this standard.		Info
69A.3	When a LED portable luminaire has a replaceable light source, the relamping marking or relamping information in the instruction sheet shall reference only an appropriately rated LED light source.		N/A
69B	Construction- electrical		N/A
69B.1	Electrical ratings		N/A
69B.1.1	The maximum ampere rating of the LED portable luminaire shall comply with Table 69B.1.		N/A
69B.1.2	ampacity rating of flexible cords with copper conductors shall be as specified in Table 69B.1.		N/A
69B.2	Power supply cord		—
69B.2.1	A power supply cord shall comply with the requirements of a Portable LED Luminaire Power-Supply Cord in the Standard for Cord Sets and Power Supply Cords, UL 817, where the requirements for two-conductor Type SP-2, SPE-2, or SPT-2 (in accordance with the Standard for Flexible Cords and Cables, UL 62) apply, except that the conductor size is 20 AWG (0.519 mm ²) or 22 AWG (0.325 mm ²).		N/A
69B.2.2	The attachment plug of the power supply cord shall be molded onto the flexible cord. The plug shall be of 15 A, 125-V configuration (NEMA 1-15P), polarized as shown in Figure 32.1.		N/A
69B.2.3	A Portable LED Luminaire power-supply cord shall be a nondetachable power-supply cord.		N/A
69B.3	Wiring and conductors		N/A

69B.3.1	Any internal wiring and conductors shall be minimum 22 AWG (0.325 mm ²) as permitted from Exception to 31.2 and shall not be smaller than the power supply cord provided.		N/A
69C	Power Supply Cord Short Circuit Test		N/A
SURFACE MOUNTED UNITS FOR WALL, UNDER-CABINET OR APPLIANCE MOUNTING - SUPPLEMENTARY			
70	General		Info
71	Wall mounted units		—
71.1	General		N/A
71.2	Construction - mechanical		N/A
71.3	Construction- electrical		N/A
71.4	Instructions		N/A
72	Under-shelf mounted units		—
72.1	General		N/A
72.2	Mounting means		N/A
72.3	Construction - electrical		N/A
72.4	Markings		N/A
73	Appliance mounted units		—
73.1	General		N/A
73.2	General Instructions		N/A
CORD AND CHAIN SUSPENDED UNITS -SUPPLEMENTARY			
74	General		Info
75	Construction - mechanical		N/A
75.1	Chains		N/A
75.2	Support hardware		N/A
75.3	Maximum weight		N/A
76	Construction - Electrical		—
76.1	Internal wiring protection		N/A
76.2	Power-supply cord		N/A
76.3	Lampholders and switches		N/A
77	Tests		—
77.1	Mounting means test		N/A
77.2	Tests for suspended toys		N/A
78	Markings		N/A
79	Instructions		N/A
CLAMP ON MOUNTED UNITS - SUPPLEMENTARY			
80	General		Info
81	Construction - Mechanical		—

81.1	Clamp		N/A
82	Construction - Electrical		N/A
82.1	Power-supply cords		N/A
82.2	Lampholders and switches		N/A
83	Tests		—
83.1	Mounting means test		N/A
PORTABLE CABINET LIGHTS - SUPPLEMENTARY			
84	General		Info
85	Construction – Mechanical		—
85.1	Mounting flange		N/A
86	Construction - Electrical		N/A
86.1	Power-supply cords		N/A
86.2	Interconnecting cord		N/A
86.3	Attachment plugs and receptacles		—
86.4	Lampholders		N/A
86.5	Low voltage portable cabinet lights		N/A
86.6	Portable cabinet light accessories		N/A
87	Tests		—
87.1	Normal temperature test		N/A
88	Markings		N/A
89	Instructions		N/A
UNITS FOR USE WITH OFFICE FURNISHINGS - SUPPLEMENTARY			
90	General		Info
91	Construction – Mechanical		—
92	Construction - Electrical		—
92.1	Power-supply cords		N/A
92.2	Plugs and receptacles		N/A
92.3	Interconnecting cord		N/A
93	Markings		N/A
94	Instructions		N/A
CONVERTIBLE UNITS - SUPPLEMENTARY			
95	General		Info
96	Construction – Mechanical		—
96.1	Swag-to-chandelier conversion kits		N/A
96.2	Surface mount conversion kits		N/A
96.3	Under-shelf mounted conversion kits		NA
97	Construction - Electrical		—

97.1	Grounding		N/A
97.2	General		N/A
97.3	Polarity		N/A
97.4	Power-supply cord		N/A
98	Markings		N/A
99	Instructions		N/A
INTERCHANGEABLE UNITS - SUPPLEMENTARY			
100	General		Info
101	Construction – Mechanical		—
101.1	Mounting		N/A
102	Construction - Electrical		—
102.1	Power-supply cords		N/A
102.2	Polarization		N/A
102.3	Adapter		N/A
103	Markings		N/A
TRACK-STYLE UNITS - SUPPLEMENTARY			
104	General		Info
105	Construction – Mechanical		—
105.1	Track		N/A
105.2	Securement of cord and end cap		N/A
105.3	Mounting means		N/A
106	Construction - Electrical		—
106.1	Power-supply cords		N/A
106.2	Polarity		N/A
106.3	Receptacle		N/A
107	Tests		—
107.1	Mechanical means of polarity test		N/A
107.2	Track clip securement test		N/A
108	Markings		N/A
109	Instructions		N/A
PORTABLE LUMINAIRE KIT - SUPPLEMENTARY			
110	General		Info
111	Construction – Mechanical		—
111.1	General		N/A
111.2	Shade		N/A
112	Construction - Electrical		—
112.1	General		N/A

112.2	Mounting of components		N/A
113	Tests		—
113.1	Assembly and installation test		N/A
114	Markings		N/A
115	Instructions		N/A
PORTABLE LUMINAIRE SUBASSEMBLIES - SUPPLEMENTARY			
116	General		Info
117	Construction – Mechanical		—
117.1	General		N/A
117.2	Power-supply cord		N/A
117.3	Mounting of components		N/A
118	Assembly and installation test		N/A
119	Markings		N/A
120	Instructions		N/A
PORTABLE LUMINAIRE ACCESSORIES - SUPPLEMENTARY			
121	General		N/A
122	Construction		N/A
123	Markings		N/A
124	Instructions		N/A
WORK LIGHTS - SUPPLEMENTARY			
125	General		Info
126	Construction – Mechanical		—
126.1	Assembly		N/A
126.2	Guards		N/A
126.3	Handles		N/A
126.4	Bases and stands		N/A
127	Construction - Electrical		—
127.1	Power-supply cords		N/A
127.2	Grounding type attachment plug		N/A
127.3	Receptacles		N/A
127.4	Tipover switches		N/A
128	Tests		—
128.1	Normal Temperature test		N/A
128.2	Abnormal operation tests		N/A
128.3	Stability tests		N/A
129	Markings		N/A

DAMP LOCATION USE - SUPPLEMENTARY			
129A	General		N/A
129B	Construction		N/A
129C	Tests		N/A
129D	Marking		N/A
WET LOCATION USE - SUPPLEMENTARY			
130	General		Info
131	Construction – Mechanical		—
131.1	Enclosure		N/A
131.2	Water shields		N/A
131.3	Corrosion protection		N/A
131.4	Drain openings		N/A
131.5	Gaskets		—
131.6	Mounting stakes		N/A
132	Construction - Electrical		—
132.1	Power-supply cords		N/A
132.2	Grounding type attachment plug		N/A
132.3	Receptacles		N/A
132.4	Lampholders		N/A
132.5	Switches		N/A
132.6	Electrical insulation		N/A
133	Tests		—
133.1	Wet location tests		N/A
134	Markings		N/A
135	Instructions		N/A
PORTABLE HAND LIGHTS - SUPPLEMENTARY			
136	General		Info
137	Construction – Mechanical		—
137.1	General		N/A
137.2	Assembly and packaging		N/A
137.3	Lamp guard		N/A
137.4	Corrosion protection		N/A
138	Construction - Electrical		—
138.1	General		N/A
138.2	Assembly		N/A
138.3	Wiring and conductors		N/A
138.4	Protection of wiring		N/A
138.5	Power-supply cords		N/A

138.6	Grounding type attachment plug		N/A
138.7	Incandescent lampholders		N/A
138.8	Switches		N/A
138.9	Receptacles		—
139	Supplementary protection		N/A
140	Tests		—
140.1	Normal temperature test		N/A
140.2	Abnormal operation tests		N/A
140.3	Mechanical test		N/A
140.4	Electrical tests		N/A
141	Markings		N/A
142	Instructions		N/A

PART II – PERFORMANCE

GENERAL – NORMAL TEMPERATURE TEST

143	General		Info
144	Test method - general		Info
144.1	Temperature limits		P
144.2	Test duration		P
144.3	Temperature measurement by thermocouple		P
144.4	Temperature measurement by change-of-resistance		N/A
144.5	Ambient temperature measurement		P
144.6	Test voltage, current, and wattage		P
144.7	High intensity discharge lamp nominal test conditions		N/A
144.8	Incandescent test lamps		P
144.9	Tungsten-halogen test lamps		N/A
144.10	Fluorescent test lamps		N/A
144.11	High intensity discharge test lamps		N/A
144.11A	Self-Ballasted LED Lamps		N/A
144.11A.1	This section covers portable luminaires intended for use with Self-Ballasted LED lamps (SBLED) only.		N/A
144.11A.2	For a portable luminaire with a screw base lampholder, a test lamp from Table 144.2 that most closely approaches the marked SBLED lamp wattage shall be used [e.g., where a maximum 20W SBLED lamp (Medium-Base) is specified, the selected test lamp would be an incandescent type 25W (Type A-15) or 25W (Type A-19)].		N/A
144.11A.3	For a portable luminaire with a bi-pin lampholder or double-end lampholder, the test lamp that most closely approaches the marked lamp shall be used (e.g., where a maximum 7W SBLED lamp is specified, the selected test lamp would be a tungsten halogen, 10W).		N/A

144.11A.4	The supply voltage shall be adjusted such that the test lamp dissipates 10 ±2 % more power than the highest wattage of marked SBLED Lamp (e.g., for a maximum 20W SBLED lamp, the supply voltage is adjusted so the test lamp dissipates 22 ±0.4W during the temperature test). <i>Exception: This requirement does not apply when the portable luminaire includes an external power supply unit or LED driver that provides supply to the SBLED lamp – see 144.6.2.</i>		N/A
144.12	Shade positions and decorative parts		N/A
144.13	Portable luminaires with secondary batteries		N/A
145	Specific test conditions – free standing and surface mounted units		P
145.1	General		P
145.2	Test results		P
146	Specific test conditions – portable cabinet lights		N/A
146.1	Other than pot style		N/A
146.2	Pot style		N/A
146.3	Test results		N/A
147	Specific test conditions – work lights		N/A
147.1	General		N/A
147.2	Test results		N/A
148	Specific test conditions – portable hand lights		N/A
148.1	General		N/A
148.2	Test results		N/A
GENERAL – ABNORMAL OPERATIONS TEST			
149	Adjustable position or multiple shade abnormal operation test		N/A
149.1	General		N/A
149.2	Test method – general		N/A
149.3	Test method – adjustable or flexible shade position		N/A
149.4	Test method – multiple shades		N/A
149.5	Test method – folding position		N/A
149.6	Test results		N/A
150	Transformer short-circuited test		N/A
150.1	General		N/A
150.2	Test method		N/A
150.3	Test results		N/A
151	Component fault test		N/A
151.1	General		N/A
151.2	Test method		N/A
151.3	Test results		N/A

152	Conductor short circuit and abnormal operation test		N/A
152.1	General		N/A
152.2	Test method – short circuit		N/A
152.3	Test method – abnormal operation		N/A
152.4	Test results		N/A
152A	Exposed Class 2 Conductor Abnormal Operation Test		N/A
GENERAL – MECHANICAL TESTS			
153	Stability test		P
153.1	General		P
153.2	Test method – general		P
153.3	Test method – units with flexible or articulated arm		P
153.4	Test method – units having provisions for loading		P
153.5	Test results		P
154	Strain relief test		P
154.1	General		P
154.2	Test method		P
154.3	Test results		P
155	Drop test		N/A
155.1	General		N/A
155.2	Test method		N/A
155.3	Test results		N/A
156	Security of screw test		N/A
156.1	General		N/A
156.2	Test method		N/A
156.3	Test results		N/A
157	Power-supply Cord Twist Test		P
157.1	General		P
157.2	Method		P
157.3	Test results		P
GENERAL – ELECTRICAL TESTS			
158	Grounding continuity test		N/A
158.1	General		N/A
158.2	Method		N/A
158.3	Test results		N/A
159	Dielectric voltage-withstand test		P
159.1	General		P
159.2	Method		P
159.3	Test results		P

160	Low voltage hinged or movable part cycling test		N/A
160.1	General		N/A
160.2	Method		N/A
160.3	Test results		N/A
161	Leakage Current Measurement Test		N/A
161.1	General		N/A
161.2	Method		N/A
161.3	Test results		N/A
161A	Input Power Measurement		N/A
INCANDESCENT UNIT TESTS			
162	Torchiere Input Test		N/A
162.1	General		N/A
162.2	Method		N/A
162.3	Test results		N/A
163	Lamp harp torque test		N/A
163.1	General		N/A
163.2	Method		N/A
163.3	Test results		N/A
164	Lampshade ease of ignition test		N/A
164.1	General		N/A
164.2	Method		N/A
164.3	Test results		N/A
TUNGSTEN-HALOGEN UNIT TESTS			
165	Tungsten halogen lamp adjacent surface and overlamping abnormal operation tests		N/A
165.1	General		N/A
165.2	Test method – general		N/A
165.3	Test method – severe condition		N/A
165.4	Test method – vertical surface		N/A
165.5	Test method – supporting surface		N/A
165.6	Test method – overhead surface		N/A
165.7	Test method – overlamping		N/A
165.8	Test results		N/A
166	Tungsten-halogen lamp guard, lamp containment barrier, and UV filter security test		N/A
166.1	General		N/A
166.2	Method		N/A
166.3	Test results		N/A
167	Tungsten-halogen torchiere abnormal operation test		N/A

167.1	General		N/A
167.2	Method		N/A
167.3	Test results		N/A
168	Tungsten-halogen torchiere vertical wall test		N/A
168.1	General		N/A
168.2	Method		N/A
168.3	Test results		N/A
169	Tungsten-halogen torchiere stability test		N/A
169.1	General		N/A
169.2	Method		N/A
169.3	Test results		N/A
170	Tungsten-halogen torchiere flexible or articulated arm stop test		N/A
170.1	General		N/A
170.2	Method		N/A
170.3	Test results		N/A
171	Reserved for future use		—
172	Polymeric lamp containment barrier test		N/A
172.1	General		N/A
172.2	Method		N/A
172.3	Test results		N/A
173	Interlock switch endurance test		N/A
173.1	General		N/A
173.2	Method		N/A
173.3	Test results		N/A
174	Heat flux density measurement test		N/A
174.1	General		N/A
174.2	Method		N/A
174.3	Test results		N/A
FLUORESCENT UNIT TESTS			
175	Abnormal operation – short starter test		N/A
175.1	General		N/A
175.2	Method		N/A
175.3	Test results		N/A
HIGH-INTENSITY-DISCHARGE UNIT TESTS			
176	Glass impact test		N/A
176.1	General		N/A
176.2	Method		N/A

176.3	Test results		N/A
177	Glass thermal shock-containment test		N/A
177.1	General		N/A
177.2	Method		N/A
177.3	Test results		N/A
SURFACE MOUNTED UNIT FOR WALL OR UNDERSHELF MOUNTING TESTS			
178	Mounting means test – Surface Mounted units		N/A
178.1	General		N/A
178.2	Method		N/A
178.3	Test results		N/A
CORD AND CHAIN SUSPENDED UNIT TESTS			
179	Mounting means test – chain and suspended units		N/A
179.1	General		N/A
179.2	Test method – general		N/A
179.3	Test method – swag unit		N/A
179.4	Test method – hanging unit		N/A
179.5	Test results		N/A
180	Test for suspended toys		N/A
180.1	General		N/A
180.2	Method		N/A
180.3	Test results		N/A
CLAMP-ON UNIT TESTS			
181	Mounting means test – clamp on unit		N/A
181.1	General		N/A
181.2	Method		N/A
181.3	Test results		N/A
TRACK-STYLE UNIT TESTS			
182	Mechanical means of polarity test		N/A
182.1	General		N/A
182.2	Method		N/A
182.3	Test results		N/A
183	Track clip securement test		N/A
183.1	General		N/A
183.2	Method		N/A
183.3	Test results		N/A

PORTABLE LUMINAIRE KIT AND SUBASSEMBLY TESTS			
184	Assembly and installation test		P
184.1	General		P
184.2	Method		P
184.3	Test results		P
WORK LIGHT TESTS			
185	Guard securement test		N/A
185.1	General		N/A
185.2	Test Method		N/A
WET LOCATION USE TESTS			
186	Rain and sprinkler tests		N/A
186.1	General		N/A
186.2	Test method – general		N/A
186.3	Test method – rain test		N/A
186.4	Test method – sprinkler test		N/A
186.5	Test results		N/A
187	Polymeric thermal conditioning test		N/A
187.1	General		N/A
187.2	Method		N/A
187.3	Test results		N/A
188	Gasket accelerated aging test		N/A
188.1	General		N/A
188.2	Test Method A		N/A
188.3	Test results A		N/A
188.4	Test Method B		N/A
188.5	Test results B		N/A
189	Gasket adhesion test		N/A
189.1	General		N/A
189.2	Test Method A		N/A
189.3	Test results A		N/A
189.4	Test Method B		N/A
189.5	Test results B		N/A
190	Paint Adhesion Test		N/A
190.1	General		N/A
190.2	Method		N/A
190.3	Test results		N/A
PORTABLE HAND LIGHT TESTS			

191	Abnormal operation tests		N/A
191.1	General		N/A
191.2	Continuous operation		N/A
191.3	Manual manipulation (following continuous operation)		N/A
191.4	Mechanical manipulation		N/A
192	Crush test		N/A
192.1	General		N/A
192.2	Method		N/A
192.3	Test results		N/A
193	Drop test		N/A
193.1	General		N/A
193.2	Method		N/A
193.3	Test results		N/A
194	Conductor secureness test		N/A
194.1	General		N/A
194.2	Method		N/A
194.3	Test results		N/A
194.4	Dielectric voltage-withstand test		N/A
195	General		N/A
195.1	Method		N/A
195.2	Test results		N/A
196	Hand Light Guard Securement Test		N/A
196.1	General		N/A
196.2	Test Method		N/A
197	Battery Tests		N/A
197.1	Charge rate		N/A
197.2	Battery and charging circuit abnormal tests		N/A

PART III – MARKINGS

198	General		—
198.1	Form		Info
198.2	Form “A” marking label		Info
198.3	Tag type markings		Info
198.4	Pictograph type markings		Info
198.5	Manufacturer’s identification		P
198.6	Electrical ratings		P
198.7	Mounting orientation		N/A
198.8	Hot surface marking		N/A

198.9	Interconnected units		N/A
198.10	Units with integral shelf, rack, or table		P
198.11	Resemblance to toy		N/A
198.12	Marking for luminaires containing hazardous substances		N/A
199	Non-Integral Power Supply		N/A
200	Portable Luminaires with Batteries		N/A
201	Incandescent units		—
201.1	Lamp replacement		P
201.2	Incandescent units shipped without lampshade		N/A
201.3	Removal of dust cover		N/A
202	Tungsten halogen units		—
202.1	Lamp replacement – single envelope lamp		N/A
202.2	Lamp replacement – double envelope lamp		N/A
202.3	Risk of fire and injury warnings		N/A
202.4	Five foot minimum mounting		N/A
202.5	Date code		N/A
203	Fluorescent units		—
203.1	Lamp replacement		P
204	Light Emitting Diode (LED) Units		P
205	High-intensity-discharge units		N/A
205.1	Lamp replacement		—
205.2	Double-ended metal halide lamp		N/A
206	Cord and chain suspended units		N/A
207	Portable cabinet lights		—
207.1	Identification		N/A
207.2	Shortened cord		N/A
207.3	Interconnecting receptacle		N/A
207.4	Portable cabinet light accessory		N/A
208	Units for use with office furnishings		N/A
209	Convertible units		N/A
210	Interchangeable units		N/A
211	Track-style units		N/A
212	Portable luminaire kits and subassemblies		N/A
213	Portable Luminaire Accessory		N/A
214	Work light		N/A
215	Wet location use		N/A
216	Portable hand lights		N/A
217	Deleted		N/A

PART IV – INSTRUCTIONS			
218	General		—
218.1	Location		P
218.2	Assembly instructions		P
218.3	Polarization instructions		P
218.4	Interconnected units		N/A
218.5	Pin type attachments plug		N/A
218.6	Shortened cord		N/A
218.7	Alternate supply connection		N/A
218.8	Attachment plugs complying with foreign standards		N/A
218.9	Portable Luminaires with Batteries		N/A
219	Incandescent units		—
219.1	Units shipped without lampshade		N/A
220	Tungsten-halogen units		N/A
221	Surface mounted units		N/A
221.1	General		N/A
221.2	Appliance mounting		N/A
222	Cord and chain suspended units		N/A
223	Portable cabinet lights		—
223.1	Installation instructions		N/A
223.2	Markings		N/A
224	Portable cabinet light accessory		N/A
225	Units for use with office furnishings		N/A
226	Convertible units		—
226.1	General		N/A
226.2	Swag to chandelier installation		N/A
226.3	Surface mount installation		N/A
227	Track-style units		N/A
228	Portable luminaire kits and subassemblies		N/A
229	Portable Luminaire Accessory		
230	Wet location use		N/A
231	Portable hand lights		N/A

SUPPLEMENT SA –REQUIREMENTS FOR BATTERY-OPERATED PORTABLE LUMINAIRES			
SA1	SCOPE		N/A
SA2	GLOSSARY		N/A
SA3	Mechanical construction		N/A

SA4	Electrical Construction		N/A
SA5	Performance		N/A
SA5.1	Normal temperature test		N/A
SA5.2	Impact resistance		N/A
SA5.3	Water entry resistance		N/A
SA5.4	Limited power capacity test		N/A
SA5.5	Battery charge tests		N/A
SA5.6	Photobiological safety assessment		N/A
SA6	Markings		N/A
SA7	Instructions		N/A

APPENDIX B – MANUFACTURING AND PRODUCTION TESTS

B1.2	Dielectric voltage withstand test		Not required
B1.3	DC Insulation Resistance Measurement Test		N/A
B2	Polarity test		Not required
B3	Continuity of grounding connection test		N/A

CSA C22.2 No. 250.4- Portable luminaires			
Clause	Requirement - Test	Result – Remark	Verdict
1	Scope (Removing lighting string)		Info
2	Reference Publications		Info
3	Definitions (Deleted definition of Tungsten halogen double envelope lamp & Tungsten halogen single envelope lamp Clarify “Under-cabinet lighting system” to “Under-cabinet luminaire”)		Info
4	General Requirements		Info

5	Mechanical construction		—
5.1	General		P
5.1.1	The requirements in Clause 5 shall be used in conjunction with the applicable supplementary requirements in this Standard.		P
5.1.2	A part removed during user maintenance shall be: (a) designed to prevent replacement in a position that would affect the intended operation of the luminaire; or (b) marked to indicate proper replacement, in accordance with Table 20.1.1, Item 1.33.		P
5.1.3	There shall be no sharp edges, burrs, or method of construction that can damage electrical insulation or reduce electrical spacings		P
5.2	Assembly and packaging		P
5.2.1	All splices and electrical connections shall be completed at the factory, unless packaging requires partial disassembly. Only assembly and electrical connections that can be accomplished with ordinary tools or tools supplied with the luminaire shall be completed at the installation site.		P
5.2.2	A luminaire that requires partial assembly in the field shall be provided with assembly instructions as specified in Table 20.1.1, Item 1.33.		P
5.2.3	All the parts required to complete a luminaire shall be shipped together, or shipped separately and marked in accordance with Table 20.1.1, Item 1.8		P
5.2.4	Parts such as decorative glassware may be shipped separately and do not require identification.		P
5.2.5	An unassembled luminaire with accessible non-current-carrying parts that can be energized after the luminaire is installed shall be provided with means for fastening and bonding those parts. The use of screws or snap-in or tab-mounted parts shall meet the intent of this requirement.		N/A
5.2.101	Through-cord type switches may be shipped unassembled to the cord and shall be provided with installation instructions in accordance with Table 20.1.1, Item 1.33.20 of CSA C22.2 No. 250.0, restricting their use to SPT-2 type cord only.		N/A

5.2.102	Floor or pole or similar room-divider types having the supporting stem made in interlocking sections that are separated for shipping purposes shall have a) splices and wiring (at the break in 2 adjacent sections) protected by an overall sleeve of insulating material at least 0.7 mm thick or by some other equivalent method; b) the protection extended over the wiring at least 100 mm on each side of the wiring splices; and c) the protection secured in position such as with insulating tape at each end of a sleeve.		P
5.3	Enclosures		P
5.3.1	A luminaire enclosure shall perform the following functions: (a) reduce the risk of contact with live parts; (b) enclose electrical parts and components that can involve a risk of fire; (c) protect internal parts from mechanical damage; and (d) protect internal parts from the environment.		P
5.3.2(new)	An enclosure shall be constructed of metal (see Clause 5.5), glass (see Clause 5.16), ceramic [3mm (0.118 in) minimum thickness], or a polymeric material (see Clause 5.7).		P
5.3.3	All splices, open coil devices, capacitors, <u>live parts (including traces on a printed circuit board having voltage levels that present a risk of shock or a risk of fire)</u> , leads or terminals for field connection of supply wires, and other arcing live parts shall be provided with an enclosure.		P
5.3.101	An enclosure is not required where a) live parts of lampholders or starter holders make contact directly to the lamp or starter contacts; b) conductors, including separated conductors of flexible cord, Type SPT-2 and larger are mechanically protected by the body or parts (other than chain) of the luminaire or by sleeving; or c) terminal connections in a recess of a wiring device covered with a barrier or compound complying with Clause 6.12.		P
5.4	Barriers		N/A
5.4.1	A barrier shall be constructed of one of the following: (a) ferrous or nonferrous metal at least 0.41 mm (0.016 in) thick; (b) glass or ceramic at least 3 mm (0.118 in) thick; (c) impregnated glass fibre sleeving at least 0.25 mm (0.010 in) thick that is rated for the temperature involved; (d) vulcanized fibre at least 0.71 mm (0.028 in) thick; or (e) a polymeric material that complies with Clause 5.7.1.6.		N/A
5.4.2	A barrier, other than of polymeric material, may be of a thickness less than that specified in Clause 5.4.1 if it complies with the barrier strength test of Clause 17.1.		N/A
5.5	Metal thickness for enclosures		P

5.5.1	The thickness of an enclosure material constructed of: (a) sheet metal and extruded aluminum shall be in accordance with Table 5.5.1 or shall comply with the metal thickness equivalency test of Clause 17.2; and (b) cast metal shall be in accordance with Table 5.5.2 or shall comply with the metal thickness equivalency test of Clause 17.2		P
5.5.2	The thickness of a metal surface for mounting a convenience receptacle of the snap-in type shall comply with the receptacle manufacturer's metal thickness specification but shall not be less than 0.51 mm (0.020 in).		P
5.6	Corrosion protection		P
5.6.1	All ferrous metal parts, including hinges, bolts, and fasteners, exposed after assembly shall be protected against corrosion by painting, coating, or plating. Copper, aluminum, alloys of copper and aluminum, stainless steel, and similar materials having inherent resistance to atmospheric corrosion are not required to have additional corrosion protection		P
5.6.2	Edges, punched holes, and spot welds in prefinished steel, enclosed steel pipe, and hanger locations for painting or plating in ferrous metals do not require any corrosion protection.		P
5.6.3	The requirements of Clause 5.6.1 shall not apply to the following: (a) bearings, sliding surfaces of a hinge or shaft, hinge pins, and similar parts located on the exterior of enclosures where such protection is not practicable; and (b) decorative parts		N/A
5.6.4	Vitreous enamels may be used as a protective coating for ferrous sheet metal having a minimum thickness of 0.6 mm (0.025 in).		N/A
5.7	Polymeric materials		N/A
5.7.1.2	An enclosure of polymeric material where all live parts are insulated or permanently spaced more than 0.8 mm (0.032 in) from the enclosure shall be resistant to UV radiation where the material is exposed to the sun or to fluorescent or unjacketed metal halide light sources. The material shall be UV rated, tested in accordance with the UV exposure test of Clause 17.5.5, or comply with the exposure to UV light test of UL 746C		N/A

5.7.1.6	<p>A polymeric material used as a barrier shall:</p> <p>(a) have a minimum HB flammability rating or comply with the horizontal burning flame test of Clause 17.25;</p> <p>(b) have a temperature rating equal to or greater than its maximum operating temperature in the luminaire;</p> <p>(c) for moulded or formed thermoplastic parts, comply with the mould stress-relief test of Clause 17.4; and</p> <p>(d) comply with the barrier strength test of Clause 18.1</p>		N/A
5.7.1.7	<p>A polymeric material that can affect the integrity of a grounding or bonding means shall:</p> <p>(a) have a minimum HB flammability rating or comply with the horizontal burning flame test of Clause 17.25;</p> <p>(b) have a temperature rating equal to or greater than its maximum operating temperature in the luminaire; and</p> <p>(c) in the case of thermoplastic parts, also comply with the mould stress-relief test of Clause 17.4 followed by the bonding circuit impedance test of Clause 18.2.</p>		N/A
5.7.101	Enclosure for insulated live parts		N/A
5.7.101.1	<p>Polymeric materials and plain paper, and fibre and wood lined with noncombustible materials used as an enclosure for insulated live parts with insulation thickness of 0.71 mm or greater, shall have a minimum HB flammability rating or comply with the horizontal burning flame in accordance with Clause 17.25 of CSA C22.2 No. 250.0</p>		N/A
5.7.101.2	<p>Polymeric enclosures of insulated live parts with insulation thickness less than 0.71 mm shall have a minimum V2 flammability rating or comply with the vertical burning test described in Clause 17.26 of CSA C22.2 No 250.0, or the needle-flame test of Clause 17.27, of CSA C22.2 No 250.0, for a flammability classification of at least V2</p>		N/A
5.7.102	Enclosure for uninsulated live parts		P

5.7.102.1	<p>Polymeric materials and plain paper, and fibre and wood lined with noncombustible materials used as a fire enclosure for uninsulated live parts that are in contact with or located within 0.8 mm of uninsulated live parts, shall comply with</p> <p>a) the flammability classification of V-2 in accordance with vertical burning test of Clause 17.26 of C22.2 No 250.0 or the needle flame test of Clause 17.27 of C22.2 No 250.0;</p> <p>b) the hot-wire ignition test of Clause 17.6 of C22.2 No 250.0 for material that is in contact with or within 0.8 mm of uninsulated live parts;</p> <p>c) the high-current arc test of Clause 17.8 of C22.2 No 250.0 for</p> <p>i) uninsulated non arcing parts of opposite polarity in contact with or located within 0.8 mm of the enclosure material; or</p> <p>ii) uninsulated arcing parts located within 12.7 mm of the enclosure material.</p> <p>d) the material shall be UV rated where it is exposed to the sun or to fluorescent or unjacketed metal halide light sources and shall be tested in accordance with the UV exposure conditioning test of Clause 17.5.5 of CSA C22.2 No.250.0 or proved to comply with the exposure to UV light.</p>		N/A
5.7.102.2	<p>A fire enclosure is not required on the base of a luminaire when the wire connectors are of an insulated crimp-on type</p>		N/A
5.7.103	Enclosure for Class 2, LED Class 2, and SELV circuits		N/A
5.7.103.1	<p>The enclosure of a luminaire assembly made of polymeric material and operating in the secondary Class 2, LED Class 2 circuit or SELV circuit, shall comply with flammability classification as determined in accordance with Table 5.7.103.1</p>		N/A

5.7.103.2	<p>An enclosure of polymeric material shall, based on the specific application, have performance characteristic as identified in Table 5.7.103.1 and the following requirements as applicable:</p> <p>a) The enclosure shall comply with the mould stress-relief test of Clause 17.4 of CSA C22.2 No.250.0 for molded or formed thermoplastic material.</p> <p>b) The material shall be UV rated, and shall be tested in accordance with the UV exposure test of Clause 17.5.5 of CSA C22.2 No.250.0, or proved to comply with the exposure to UV light.</p> <p>c) The enclosure shall meet the flammability ratings from lower to higher: HB, V-2, V-1, V-0, 5-VB, 5-VA.</p> <p>d) The enclosure shall have a RTI (Relative Temperature Index rating) equal to or greater than its maximum operating temperature or a generic thermal index as specified in the CAN/CSA C22.2 No. 0.17.</p> <p>e) For an enclosure of polymeric material where any uninsulated live parts are located within 0.8 mm of the enclosure, meet the requirements of Table 5.7.103.1 for CTI (Comparative Tracking Index rating), HWI (Hot-Wire Ignition Rating), and HAI (High-current Arc resistance to Ignition rating).</p>		N/A
5.7.103.3	<p>The lens (primary optic) of an LED package in a circuit that is considered to have a risk of electric shock is not required to have an electrical enclosure when constructed of glass or polymeric material that complies with the dielectric voltage withstand test of Clause 18.1 applying a potential of 500 V between the lens surface and the electrical connections to the LED package</p>		N/A
5.8	Baffles		N/A
5.8.1	<p>A baffle shall</p> <p>(a) be made of metal that complies with the appropriate requirements of Clause 5.5; or</p> <p>(b) be made of nonmetallic material that complies with the five-inch flame test of Clause 17.3 or has a minimum 5VA flammability rating; and</p> <p>(c) if made of perforated material, have one of the following constructions:</p> <p>(1) a galvanized steel screen, or the equivalent, having a 14 x 14 mesh per square inch and wire with a minimum diameter of 0.46 mm (0.018 in);</p> <p>(2) a perforated metal plate, having evenly distributed openings that are not more than 11 per cm² (71 per in²) and that have a maximum dimension of 1.6 mm (0.063 in); or</p> <p>(3) a perforated panel that complies with the flaming oil test of Clause 17.12.</p>		N/A
5.10	Mechanical joints and fastenings		P
5.10.1	<p>The method of making a joint shall provide strength and rigidity and prevent turning that can result in movement of conductors or wiring devices after the assembly is completed.</p>		P

5.10.2	Self-threading screws, including sheet-metal screws, used to secure electrical or enclosure component parts in place or together shall comply with the self-threading screw torque test in Clause 17.14 when the screw threads into nonferrous metal or polymeric material.		N/A
5.10.3	A self-threading or sheet metal screw used for mounting or supporting a part that weighs more than 3.4 kg (7.5 lb) per screw shall comply with the self-threading screw torque test in Clause 17.14.		N/A
5.10.4	If threads of sheet-metal or self-tapping screws extend into a wiring compartment for a distance of more than 5 mm (0.2 in), the conductors shall be reliably positioned away from the projecting screws, or the conductors shall be sufficiently loose to prevent damage to the insulation.		N/A
5.10.5	Frictional contact between parts alone shall not be acceptable as means of preventing turning. Turning may be prevented by the use of a suitable lockwasher properly applied, a locknut seated against another nut, or an equivalent threaded assembly, or by some other equivalent method such as swaging or suitable adhesive. An additional means of holding is not required if the joint consists of a full tapered pipe thread.		N/A
5.10.6	A sheet metal nut for bolts larger than 6.4 mm (0.250 in) in diameter may be used to prevent turning or loosening if it is not depended upon for mechanical strength.		N/A
5.10.7	Sheet metal nuts fabricated of heat-treated steel may be used: (a) for assembly; (b) to prevent turning of threaded tubing no larger than 1/4 IPS; or (c) on bolts or studs that are no larger than 6.4 mm (0.250 in) in diameter.		N/A
5.10.8	When used as a supporting device, unthreaded tubing joints shall comply with the loading test of Clause 17.15.		N/A
5.10.9	Enclosure parts shall be secured by positive mechanical means, such as screws, welding, or interference fit.		N/A
5.10.12	Not applicable		N/A
5.10.13	Snap-in and tab-mounted parts that are secured together by interference fit alone and that have a knockout or conduit opening shall comply with the snap-in and tab-mounted parts test with conduit opening of Clause 17.17.		N/A
5.10.14	Clause 5.10.14 of CSA C22.2 No. 250.0 shall be applicable to chain-and-hook-supported (swag type) luminaires only		N/A
5.10.15 (new)	An assembly of glass and frame or glass and recessed trim, where the combination is secured to the luminaire using friction such as spring loaded clips, shall comply with the loading test in Clause 17.15.		N/A

5.10.101	The plant-growing section of a planter-type luminaire shall be completely separate from a raceway, enclosure, or any other compartment containing electrical parts, and there shall be no nail- or screw-type (or other similar type) fastenings between them that might allow water leakage into the electrical section.		N/A
5.11	Means of mounting		P
5.11.101	Luminaires shall have a base or other free-standing type of support (e.g., base and stand for a table or floor lamp), or means for pin-up or a similar type of mounting. <i>Note: Luminaire kits specified in Clause 13.6 are not required to comply with this clause.</i>		P
5.11.102	Openings for pin-up luminaires shall facilitate removal from the wall without the use of a tool and shall be located such that a supporting hook, screw, etc. is prevented from contacting electrical parts. At least one opening shall be provided for each 2.3 kg of the luminaire.		N/A
5.11.103	An external ring hanger shall be formed of metal or plastic, and shall be subjected to the loading test of Clause 17.15 of CSA C22.2 No 250.0 with a load of three times the weight to be supported.		N/A
5.11.104	Flexible cord or wiring shall not be used for the support of a luminaire except as permitted by Clause 10.2.12 of CSA C22.2 No 250.0.		N/A
5.11.105	A luminaire that is designed to be hung from a ceiling or wall shall not incorporate a bowl, shelf, hook, or any provisions intended to support any object that is not part of the luminaire, other than a shade or diffuser.		N/A
5.11.106	A chain in chain-and-hook-supported (swag type) luminaires shall a) not be less than 3.7 m or greater than 6.1 m long; b) not exceed the total weight of 9 kg, which includes 1.2 m of chain, 1.2 m of flexible cord, lampholder assembly, shade or diffuser, and all decorative parts; c) be provided with at least two support hooks that are intended to be mounted to wooden building structure by means of a No 10 wood screw having a nominal threaded length of 32 mm with a 3 mm minus tolerance; and <i>Note: Toggle bolts and similar devices are not considered as an acceptable means for securing the hooks.</i> d) include installation instructions in accordance with Table 20.1.1, Item 1.33, of C22.2 No. 250.0 which shall not indicate any references to toggle bolts or similar devices.		N/A
5.11.107	Cord supported luminaires, which are designed to be supported by means of hooks described in Clause 5.11.106 c), shall be provided with an additional means of support such as a hook designed of plastic or equivalent insulating material.		N/A

5.11.108	Luminaires or parts of luminaires, supported from a ceiling by means other than described in Clauses 5.11.106 and 5.11.107, shall a) not exceed a weight of 9 kg; or b) be supported by a keeper wire or equivalent, which complies with the loading test described in Clause 17.15 of CSA C22.2 No. 250.0 with a load of three times the weight to be supported.		N/A
5.11.109	A free standing luminaire, such as a floor or table type, shall be provided with weights or the equivalent in the supporting base to prevent overturning and shall comply with the stability test of Clause 17.102.		P
5.11.110	Mounting stakes		N/A
5.11.110.1	Outdoor type luminaires provided with one or more stakes for mounting shall be provided with stakes having a minimum length of 12.7 cm.		N/A
5.11.110.2	Stakes of less than 12.7 cm length may be used if the luminaire is provided with a minimum 7 cm diameter plate perpendicular to the stake.		N/A
5.11.110.3	Mounting stakes shall be reinforced along their entire length.		N/A
5.12	Movable joints		P
5.12.1	A movable joint, such as a swivel joint or telescoping arm, containing conductors shall be constructed so that movement of the joint will not result in damage to the insulation of conductors. Rotation shall be limited to 370°, or the movable joint shall comply with the movable joint endurance test of Clause 17.19.		P
5.12.2	A movable joint containing conductors shall comply with the movable joint torsion and pull tests of Clause 17.20 and shall remain intact and operable.		P
5.13	Raceway tubing		P
5.13.1	Tubing shall be free from kinks or cracks, and if it is: (a) unthreaded metal tubing, it shall be at least 0.5 mm (0.020 in) thick; (b) threaded metal tubing, it shall be at least 1.0 mm (0.040 in) thick; or (c) metal tubing with rolled threads, it shall be at least 0.5 mm (0.020 in) thick.		P
5.14	Conductor protection		P
5.14.1	Conductors that pass over edges or through openings in metal shall be secured from contacting the edges or be protected from cutting and abrasion. For sheet metal less than 1.1 mm (0.042 in) thick, protection shall be provided by one of the following methods: (a) rolling the edge of the metal not less than 120°; (b) a bushing or grommet of a material other than rubber at least 1.2 mm (0.047 in) thick; or (c) glass sleeving at least 0.25 mm (0.010 in) thick.		P
5.15	Strain relief		P

5.15.1.1	A strain relief shall be provided such that a stress by pulling, pushing, flexing, or twisting on conductors or flexible cords will not be transmitted to wiring connections or interior components.		P
5.15.1.2	Additional strain relief shall not be required when a) the supply cord is permanently installed in a wiring device by the wiring device manufacturer in such a way that replacement of the cord requires the use of a tool; or b) the supply cord is routed through a length of raceway or the equivalent and complies with the strain relief test of Clause 17.21.1.		N/A
5.15.2.1	A strain relief for a flexible cord shall comply with the 15.9 kg (35 lb) strain-relief test of Clause 17.21.1		P
5.15.2.2	A strain relief shall be provided at both ends of a flexible cord when the cord supports a luminaire or luminaire part.		N/A
5.15.2.3	A strain relief shall be provided at only one end of a flexible cord under the following conditions: (a) the cord is attached directly to a wiring device, such as an attachment plug, by the wiring device manufacturer; or (b) it complies with the strain-relief test of Clause 17.21.1.		P
5.15.3.1	The strain relief for a conductor shall comply with the pull test of Clause 17.21.2.		N/A
5.15.101	When a knot in a cord or wiring serves as strain relief, the surface against which the knot may bear or contact shall be free from projections, sharp edges, burrs, fins etc., which could cause damage to conductor insulation.		P
5.15.102	A knot shall be located so that it is not removable without disassembling the luminaire or parts of the luminaire.		P
5.15.103	Strain reliefs of the metallic crimp-on or set screw type shall not be used when bearing directly on the cord.		N/A
5.15.104	A thermoplastic set screw type provided with a positive stop or insulated crimp-on metal type strain relief device when applied to a jacketed type cord shall a) comply with the strain-relief test of Clause 17.21.1; and b) not result in adversely damaging or puncturing the jacket of the cord.		P
5.16	Glass		P
5.16.1.1	Edges of glass accessible during normal use or maintenance shall be seamed, swiped, fire-polished, or similarly treated to eliminate sharpness.		P
5.16.101	Shades, diffusers, and lamp guards		P

5.16.101.1	Covers, shades, and similar parts not having an insulation function, and which do not withstand the 650 °C glow-wire end product test of Clause 17.7 of CSA C22.2 No. 250.0, shall be adequately and reliably spaced from any heated part of the luminaire which could raise the material to its ignition temperature. These parts made of flammable material shall have suitable fastenings or supporting devices to maintain this spacing.		P
5.16.101.2	The spacing from heated parts described in Clause 5.16.101.1 shall be at least 30 mm, unless the material is protected by a screen spaced at least 3 mm from the heated parts. This screen shall comply with the needle-flame test of Clause 17.27 of C22.2 No. 250.0, shall have no holes, and shall have a height and a length at least equal to the corresponding dimensions of the heated parts. A screen is not required in cases where the luminaire provides an effective barrier to burning drops.		P
5.16.101.3	Materials that burn fiercely, such as celluloid, nitrocellulose sheet, mouldings, or pyroxylin coatings on material other than metal, either alone or as treatments, shall not be used.		P
5.17	Glass support		P
5.17.1	Glass shall be secured in place and shall not be subjected to undue strain that can result in breakage or release during normal use or maintenance.		P
5.17.2	Glass mounted in a frame that is required to be opened or removed for maintenance shall be secured to the frame.		P
5.17.3	Clips that are used to secure a glass panel to the frame shall overlap the glass at least 5 mm (0.20 in).		N/A
5.17.4	An adhesive material used as the sole support of glassware shall comply with the adhesive support test of Clause 17.23.		N/A
5.17.5	A channel or frame for holding glass diffusers shall be: (a) steel at least 0.4 mm (0.016 in) thick; (b) nonferrous metal at least 0.5 mm (0.020 in) thick; or (c) polymeric material at least 1.5 mm (0.059 in) thick.		N/A
5.17.6	Glass globes, glass panels, or decorative glass parts shall be secured by one or more of the following means: (a) a circular fitter with at least three supports; (b) a threaded stud and nut; (c) a threaded glass part and associated fitter; (d) a frictional contact assembly that complies with the glass support test of Clause 17.24; (e) an adhesive that complies with Clause 5.17.4; (f) its own weight in a frame or fitter that is not hinged; and (g) a straight rod with a stop or a hook through a hole in the glass.		P
6	Electrical construction		P

6.1.1	The requirements in Clause 6 shall be used in conjunction with the applicable supplementary requirements in this Standard.		P
6.1.2	Current-carrying parts shall be copper, copper alloy, nickel alloy, or stainless steel, unless otherwise specified in this Standard.		P
6.2	Wiring devices		P
6.2.1	A wiring device shall be rated for the temperatures, locations, voltage, and current encountered during normal operation.		P
6.2.2	A luminaire incorporating a wiring device rated for ac use shall be marked with the frequency or for ac use only, in accordance with Table 20.1.1, Item 1.4 or 3.7.		P
6.2.3	A wiring device shall be prevented from any turning that can apply tension to conductor connections, result in damage to the conductor, or otherwise adversely affect the assembly. Friction alone between the mating parts of the assembly shall not be acceptable as a means to prevent turning.		P
6.2.4	Parts of wiring devices that are removable from outside the enclosure without the use of ordinary tools shall not result in access to live parts within the enclosure.		N/A
6.2.5	The rating of an attachment plug assembled to a flexible cord for connection to a branch circuit shall comply with Table 6.2.1.		N/A
6.3	Lampholders		P
6.3.1	A lampholder of a luminaire shall be suitable for the application.		P
6.3.2	A lamp-supported lampholder shall be provided with stranded conductors.		N/A
6.3.3	A husk or sleeve made of treated cellulosic fibre, provided to electrically insulate the terminals and screwshell of a lampholder, shall be at least 0.8 mm (0.032 in) thick and shall be positively retained. If the husk or sleeve is not positively retained and the wire terminals of the lampholder are accessible with the husk or sleeve removed, they shall be additionally enclosed in accordance with Clause 5.3.		N/A
6.3.4	The screwshell of a lampholder shall be connected to the identified or polarized blade of the attachment plug cap.		P
6.4	Switches		P
6.4.1.1	A switch shall have a minimum ampere rating equal to the total load current it controls multiplied by the load factor shown in Table 6.4.1.1.		P
6.4.1.2	A switch shall disconnect all of the ungrounded conductors of a supply circuit simultaneously, except as specified in Clause 6.4.1.4.		P
6.4.1.3	A single-pole switch shall not be connected in the neutral grounded conductor.		P

6.4.101	If an electrical-discharge luminaire employs a single-pole switch, or incorporates a ballast that has an identified line lead or that is marked to indicate that one of its line leads is to be connected to the identified conductor of the supply circuit, one of the conductors shall be identified.		N/A
6.4.102	A luminaire employing a dimming device shall be provided with instructions in accordance with Table 20.1.1, Item 1.33 of CSA C22.2 No. 250.0 to indicate that only self-ballasted lamps that are suitable for use with lamp dimmers shall be used when replacing lamps.		N/A
6.5	Receptacles		P
6.5.1	A receptacle in a luminaire that is required to be grounded shall be of a grounding type and marked for maximum load in accordance with Table 20.1.1 of CSA C22.2 No. 250.0, Item 3.3 or 3.4.		N/A
6.5.3	A luminaire may be provided with a maximum of one duplex or two single convenience receptacles.		P
6.5.101	A receptacle in a luminaire that is required to be polarized as specified in Clause 6.10 of CSA C22.2 No. 250 shall be of the polarized type and marked for maximum load in accordance with Table 20.1.1 of CSA C22.2 No. 250.0, Item 3.3 or 3.4.		P
6.5.102	If receptacles are provided, the luminaire shall comply with Clause 6.9.2.102.		P
6.6	Fuses and fuseholders		N/A
6.6.1	A replaceable fuse shall be of the type that requires mounting in a fuseholder.		N/A
6.6.2	The fuse identification and ampere rating shall be marked on or adjacent to the fuseholder as specified in Table 20.1.1, Item 3.5.		N/A
6.6.3	A fuseholder shall disconnect all ungrounded conductors of the supply circuit simultaneously during fuse replacement.		N/A
6.6.4	A fuse shall not be connected in the neutral grounded conductor.		N/A
6.7	Ballasts and transformers		N/A
6.7.1.1	A luminaire incorporating a ballast or transformer having an open circuit voltage of more than 1000 V shall be marked not for use in dwellings, in accordance with Table 20.1.1, Item 2.5.		N/A
6.7.1.2	A ballast or transformer required to operate lamps of the type and wattage for which the luminaire was designed shall be provided with the luminaire and shall be wired in accordance with the diagram or instructions on or with the ballast. For luminaires designed for use with remote ballasts, see also Clause 6.7.2.		N/A

6.7.1.3	<p>When a luminaire is intended to be connected to the line and neutral grounded conductors of a branch circuit, as shown in Figure 6.7.1.1, and is provided with:</p> <p>(a) an auto-transformer or an auto-transformer-type ballast, the screwshell of the lampholder shall be connected to the neutral grounded conductor, unless provision is made to protect against accidental contact with the lamp screwbase during insertion or removal of the lamp; or</p> <p>(b) an isolating-type transformer or ballast, the screwshell of the lampholder shall be separately bonded to ground, unless provision is made to protect against accidental contact with the lamp screwbase during insertion or removal of the lamp.</p>		N/A
6.7.1.4	<p>When a luminaire is intended to be connected to the line-to-line conductors of a branch circuit, as shown in Figure 6.7.1.1, and is provided with:</p> <p>(a) an auto-transformer or auto-transformer-type ballast, provision shall be made to protect against accidental contact with the lamp screwbase during insertion or removal of the lamp; or</p> <p>(b) an isolating-type transformer or ballast, the screwshell of the lampholder shall be separately bonded to ground, unless provision is made to protect against accidental contact with the lamp screwbase during insertion or removal of the lamp.</p>		N/A
6.7.1.5	<p>Allowing the thermal test results of one HID ballast to represent other HID ballasts shall be acceptable, with the following exceptions:</p> <p>(a) A metal halide or mercury vapour type shall not represent a high-pressure sodium type.</p> <p>(b) A high-pressure sodium type shall not represent a metal halide or mercury vapour type.</p> <p>(c) A lower wattage shall not represent a higher wattage type.</p> <p>(d) A ballast with one class insulation system shall not represent a ballast with a different class insulation system.</p> <p>(e) For a ballast of other than the enclosed and potted type with a Class 105 insulation system, a ballast with a bench-test temperature shall not represent a ballast with a higher bench-test temperature.</p> <p>(f) A ballast that is not thermally protected shall not represent a ballast whose thermal protector:</p> <p>(1) is buried within the ballast and has a temperature rating of less than the rating of the ballast system; or</p> <p>(2) is located on the ballast core or under the wrap of an open coil and has a temperature rating of less than 90 °C for a Class 105 system, 110 °C for a Class 130 system, or 150 °C for a Class 180 system.</p>		N/A
6.7.101	<p>Step down transformer shall be of the isolating type complying with the applicable requirements of CSA C22.2 No. 66.1.</p>		N/A

6.7.102	A direct plug-in transformer, power supply, or lamp controlgear shall not use the cover plate mounting screw as a means of support.		N/A
6.7.103	A through-cord type transformer, power supply, or lamp controlgear shall be located not less than 0.9 m from the attachment plug cap.		N/A
6.7.104	Discharge type lamp ballasts shall comply with CAN/CSA-C22.2 No. 74.		N/A
6.7.105	Lamp control devices used with LED light sources shall comply with applicable requirements of a) CAN/CSA-C22.2 No. 61347-2-13 and CAN/CSA-C22.2 No. 62031; or b) CAN/CSA-C22.2 No. 250.13.		N/A
6.8	Capacitors		N/A
6.8.1	A capacitor, other than the type specified in Clause 6.8.2, shall be rated for the appropriate voltage and the maximum available fault current (AFC) to which it can be subjected, as follows: (a) a value of 10 000 A minimum when connected directly across the branch circuit; (b) a value of 200 A minimum when connected in series with a ballast coil; or (c) the maximum current available to the capacitor under capacitor short-circuit condition, as determined by investigation.		N/A
6.8.2	A dry metallized-film capacitor operating at a maximum of 330 V shall not be required to have a maximum available fault current rating.		N/A
6.8.3	A luminaire incorporating a capacitor as a component separate from the ballast shall: (a) have a maximum rating of 0.06 µF and a maximum operating potential of 500 V peak; or (b) provide means to discharge the capacitor within 1 min after removal of the capacitor voltage, in accordance with Clauses 6.8.4 to 6.8.6.		N/A
6.8.4	The means to discharge the capacitor may consist of a bleeder resistor or a closed loop of the circuit that is not opened by lamp removal or operation of a switch, fuse, or similar device.		N/A
6.8.5	The voltage across the capacitor terminals at the end of 1 minute shall be reduced to a value of 50 V or less, and the energy stored shall be less than 20 J, as determined by the equation: $J = 5 \times 10^{-7} CV^2$ where: J = the energy stored, J C = the capacitor rating, µF V = the capacitor peak voltage, V		N/A

6.8.6	<p>The maximum value of a bleeder resistor shall be determined by the equation:</p> $R = \frac{K}{C}$ <p>where:</p> <p>R = the resistance value, MΩ</p> <p>K = the resistor factor determined from Table 6.8.1</p> <p>C = the capacitor rating, μF</p>		N/A
6.8.7	<p>An oil-filled capacitor shall be provided with an expansion spacing between any luminaire part and the capacitor terminals in accordance with Clause 6.8.8, unless marked otherwise on the capacitor.</p>		N/A
6.8.8	<p>In addition to the electrical spacing required in Clause 6.11, the minimum expansion spacing perpendicular to the capacitor terminal shall be:</p> <p>(a) 11 mm (0.44 in) for a maximum of 300 V; or</p> <p>(b) 13 mm (0.50 in) for a voltage more than 300 V.</p>		N/A
6.8.101	<p>Portable luminaires designed to be connected to the supply by means of a plug, and incorporating a capacitor of capacitance exceeding 0,25 pF, shall be provided with a discharge device so that 1 s after disconnection the voltage between the pins of the plug or adaptor/connector contacts does not exceed 34 V.</p>		N/A
6.9	<p>Conductors and cords</p>		P
6.9.1	<p>Current-carrying conductors shall be copper, copper alloy, or nickel alloy.</p>		P
6.9.2	<p>Conductors and flexible cords shall be minimum No 18 AWG, except as specified in Clause 6.9.3 and 6.9.4 of CSA C22.2 No 250.0 and shall be rated for the voltage, current, temperature, and condition of service to which they will be subjected, in accordance to Tables 6.9.101.1, 6.9.101.2, 6.9.101.3, and 6.9.101.4.</p>		P
6.9.2.101	<p>There shall not be more than one supply cord to a luminaire.</p>		P
6.9.2.102	<p>A luminaire incorporating a single or double receptacle shall be provided with a 16 AWG cord and shall be marked with the maximum allowable current rating in accordance with Table 20.1.1 Item 3.3 or 3.4 of CSA C22.2 No. 250.0.</p>		P
6.9.3	<p>Conductors of a size smaller than No. 18 AWG may be used under the following conditions:</p> <p>(a) where they are completely enclosed;</p> <p>(b) where they are not subject to movement under normal use; and</p> <p>(c) in the secondary of a transformer, or in a circuit using solid-state devices.</p>		N/A

6.9.4	<p>Conductors of a size smaller than 24 AWG (0.21 mm²) may be used under the following conditions:</p> <p>a) the conductors are in Class 2 or limited power source only;</p> <p>b) the current-carrying capacity of the conductor is not exceeded and is sufficient to carry the continuous normal load current without any temperature-related issues; and</p> <p>c) the construction complies with one of the following:</p> <p>i) the conductors shall have an insulation rating not less than the voltage on the conductor and be stranded if accessible during use or maintenance, or inaccessible but subject to movement during maintenance; or</p> <p>ii) the luminaire shall be provided with a barrier to prevent contact with wiring that is not connected to a Class 2 or limited power source. The width of an opening between a barrier and adjacent parts shall not exceed the diameter of the Class 2 or limited power source wire. This dimension shall be measured between the barrier and the enclosure walls, components, or the like that serve as part of the compartment for the Class 2 or limited power source wiring.</p>		N/A
6.9.5	<p>A conductor or cord that can be flexed because of an adjustable, movable, or flexible part of a luminaire shall be of the stranded type and shall be secured so it will not be cut or abraded under conditions of intended use, including relamping, servicing, and inspection of supply connections.</p>		P
6.9.6	<p>In a luminaire construction that allows the conductor or cord to be pushed back into the luminaire, the temperature rating of the conductor or cord shall be suitable for the operating temperature of any component it can contact.</p>		P
6.9.7	<p>An insulated conductor, including each insulated conductor of a cord, that is rated for 90 °C, 105 °C, or 125 °C shall be considered as rated for 150 °C if each conductor is individually provided with supplemental insulation consisting of snugly fitting woven glass fibre sleeving having at least a 0.25 mm (0.010 in) wall thickness or at least two layers of glass fibre tape that provide a total thickness of at least 0.25 mm (0.010 in)</p>		N/A
6.9.8	<p>An insulated wire connector having a voltage rating less than that required for the application may be used if the splice, including the connector, is additionally covered with insulation rated for the voltage difference between the required voltage and the rated voltage of the connector.</p>		N/A
6.9.103	<p>Chain and hook supported type luminaires shall use a minimum type NISPT-2 or SPT-2 105°C flexible cord at least 4.6 m long, and the free end of the cord shall extend between 0.3 m and 1.5 m beyond the end of the chain.</p>		N/A

6.9.104	A luminaire marked for residential use in accordance with Table 20.1.101 shall have the power supply cord extend at least 1.5 m from the point at which the cord emerges from the body of the luminaire, the distance being measured to the face of the attachment plug.		P
6.9.105	A luminaire intended for other than residential use employing a hard usage flexible cord such as Types SJ, SJT, or SJO shall not be required to comply with Clause 6.9.104.		N/A
6.9.106	Individual conductors, not exceeding 50 mm in length and not in a raceway, if partially exposed, shall be mechanically protected by a sleeving that is secured in place over the conductors. The wiring and sleeving shall be routed and secured against the body or part of the luminaire by means of clips or the equivalent		P
6.10	Unenclosed conductors in Class 2 circuits Not applicable		—
6.11	Identification and polarity		N/A
6.11.3	The identified terminal of a wiring device shall be connected to the identified conductor of the supply cord.		N/A
6.11.4	A cord-and-plug-connected luminaire equipped with a polarized two-pole, two-wire parallel blade attachment plug shall be marked for proper polarity in accordance with Table 20.1.1, Item 4.5.		N/A
6.12	Electrical spacings		P
6.12.1	Primary circuits		P
6.12.1.1	The minimum spacings in the primary circuit shall be not less than 3.2 mm (0.125 in) clearance through air and 6.4 mm (0.250 in) creepage distance between uninsulated parts of opposite polarity and uninsulated parts and non-current carrying metal parts.		P
6.12.1.2	Spacings shall be measured with all fittings installed as intended, whether they are furnished with the luminaire or not. Parts that can be rotated after installation shall be moved to a position that minimizes the spacing being measured.		P
6.12.1.3	The spacings at fuses and fuseholders shall be measured with the fuses in place. The fuses shall be those with the maximum standard dimensions.		N/A
6.12.1.4	The spacing shall be determined by using the voltage measured between the electrical parts, other than lamp igniters, when operating normally with the luminaire connected to a power supply of rated voltage and frequency.		P
6.12.1.5	A film coated conductor shall be considered as an uninsulated part for the purposes of measuring spacings.		N/A
6.12.1.6	A reliable restraint such as a shoulder or boss, when provided, shall prevent a spade or ring terminal from turning and reducing the spacings specified in Clause 6.11.1.		N/A
6.12.2	Primary and secondary		N/A

6.12.2.1	Clearance and creepage spacings between the primary and secondary circuits shall comply with Clauses 6.11.2.2 and 6.11.2.6 as applicable to the type of insulation. The spacing between uninsulated live parts of different circuits involving different voltages shall be not less than that required for the circuit of the higher voltage.		N/A
6.12.2.2	Clearance and creepage spacings between uninsulated live parts and accessible metal parts shall be less than the values of Clause 6.11.1.1 as applicable to the type of insulation, provided they are capable of withstanding the dielectric withstand test of Clause 18.1 using voltage equal to twice the working voltage plus 1000 V.		N/A
6.12.2.3	<p>The following parts shall be provided with basic insulation between them. Clearance and creepage shall be not less than the values shown in Table 6.11.2.1 between:</p> <ul style="list-style-type: none"> a) uninsulated live parts in a primary circuit and inaccessible non-current carrying metal parts that are bonded to ground; b) uninsulated live parts in a primary circuit and accessible uninsulated electrical parts in a secondary circuit that operates at not more than 30 V rms or 42.4 V peak; c) uninsulated live parts in a primary circuit and inaccessible uninsulated live parts in a secondary circuit; and d) parts that require basic insulation as an element of double insulation. 		N/A
6.12.2.4	<p>When the following parts are provided with supplementary insulation between them, the clearance and creepage distance shall not be less than the values shown in Table 6.11.2.1 between:</p> <ul style="list-style-type: none"> a) accessible non-current-carrying metal parts and other metal parts that could become live parts in the event of a failure of basic insulation; and b) parts that require supplementary insulation as an element of double insulation. 		N/A
6.12.2.5	<p>When the following parts are provided with reinforced insulation between them, the clearance and creepage distance shall not be less than the value shown in Table 6.11.2.2 between</p> <ul style="list-style-type: none"> a) uninsulated live parts in a primary circuit and accessible non-current carrying metal parts that are bonded to ground; and b) uninsulated live parts in a primary circuit and accessible uninsulated electric parts in a secondary circuit that operates at not more than 30 V rms or 42.4 peak. 		N/A

6.12.2.6	<p>When the following parts are provided with double insulation between them, the clearance and creepage distance shall not be less than the value shown in Table 6.11.2.2 between</p> <p>a) uninsulated live parts in a primary circuit and inaccessible non-current carrying metal parts that are bonded to ground; and</p> <p>b) uninsulated live parts in a primary circuit and accessible uninsulated electric parts in a secondary circuit that operates at not more than 30 V rms or 42.4 peak.</p>		N/A
6.12.3	Secondary circuits		N/A
6.12.3.1	<p>Clearance and creepage spacings between the secondary circuits shall comply with Clauses 6.11.3.2 to 6.11.3.7 as applicable to the type of insulation.</p>		N/A
6.12.3.2	<p>Clearance and creepage spacings between uninsulated live parts and accessible metal parts may be less than the values of Clauses 6.11.3.3 to 6.11.3.7 as applicable to the type of insulation, provided they are capable of withstanding the dielectric withstand test of Clause 18.1 using voltage equal to twice the working voltage plus 1000 V.</p>		N/A
6.12.3.3	<p>When the following parts are provided with basic insulation between them, the clearance and creepage distance shall not be less than the values shown in Table 6.11.3.1 between</p> <p>a) uninsulated live parts in a secondary circuit and inaccessible uninsulated live parts that are not bonded to ground in the same secondary circuit;</p> <p>b) uninsulated live parts in a secondary circuit and accessible or inaccessible non-current-carrying metal parts that are bonded to ground;</p> <p>c) uninsulated live parts in a secondary circuit and accessible uninsulated electrical parts operating at not more than 30 V rms, 42.4 V peak, or 60 V dc in the same secondary circuit; and</p> <p>d) parts that require basic insulation as an element of double insulation.</p>		N/A
6.12.3.4	<p>When the following parts are provided with supplementary insulation between them, the clearance and creepage distance shall not be less than the values shown in Table 6.11.3.1 between</p> <p>a) accessible non-current-carrying metal parts and other metal parts that could become live parts in the event of a failure of basic insulation; and</p> <p>b) parts that require supplementary insulation as an element of double insulation.</p>		N/A

6.12.3.5	When the following parts are provided with operational insulation between them, the clearance and creepage distance shall not be less than the values shown in Table 6.11.3.1 between a) uninsulated electrical parts operating at not more than 30 V rms, 42.4 V peak or 60 V dc and noncurrent-carrying metal parts that are bonded to ground; and b) uninsulated electrical parts of different circuits operating at not more than 30 V rms, 42.4 V peak or 60 V dc.		N/A
6.12.3.6	When the following parts are provided with reinforced insulation between them, the clearance and creepage distance shall not be less than the value shown in Table 6.11.3.2 between uninsulated live parts in a secondary circuit and accessible non-current carrying metal parts that are bonded to ground.		N/A
6.12.3.7	When the following parts are provided with double insulation between them, the clearance and creepage distance shall not be less than the value shown in Table 6.11.3.2 between uninsulated live parts in a secondary circuit and accessible non-current carrying metal parts that are not bonded to ground.		N/A
6.13	Electrical insulation		P
6.13.1	Electrical insulation, including that used in component wiring devices, shall be of material that is suitable for the particular application. The acceptability of insulating material shall include consideration of the following: (a) mechanical strength; (b) dielectric voltage-withstand; (c) insulation resistance; (d) heat-resistant and moisture-resistant properties; (e) degree of enclosure protection; (f) other factors, such as arcing and aging, that have a bearing on the risk of fire and electric shock under conditions of actual use; and (g) flammability rating (it shall be at least HB).		P
6.13.101	Electrical insulation shall be achieved by provision of either one or a combination of the following: a) solid or laminated insulating materials with adequate thickness and adequate creepage over surface, in accordance with Clause 6.11; and b) an adequate clearance through air, in accordance with Clause 6.11.		P
6.13.102	Electrical insulation provided in luminaire or component wiring devices shall comply with a) applicable dielectric voltage-withstand test of Clause 18.1; b) insulation thickness requirements of Clause 6.12.104; and c) normal temperature test requirements of Clause 15.		P
6.13.103	Film-coated conductor windings do not require additional treatment to resist moisture absorption.		N/A
6.13.104	Insulation thickness		N/A

6.13.104.1	<p>The thickness of basic, supplementary, and reinforced insulation, other than that for printed circuit boards, shall be as follows:</p> <p>a) For maximum operating voltage that does not exceed 30 V rms (42.4 V peak), there is no thickness requirement.</p> <p>b) Basic insulation shall have a minimum thickness of 0.1 mm (0.004 in) or comply with the dielectric voltage-withstand test of Clause 18.1. Materials and thicknesses suitable for basic insulation shall be as shown in Table 6.12.104.1. Other insulating materials shall comply with the insulation equivalence test of Clause 18.104 and the dielectric voltage-withstand test voltage shall be 2500 V.</p> <p>c) Supplementary insulation shall have a minimum thickness of 0.4 mm (0.016 in) or comply with the dielectric voltage-withstand test of Clause 17.1. Materials suitable for supplementary insulation are shown in Table 6.12.104.1. Other insulating materials shall comply with the insulation equivalence test of Clause 18.104.</p> <p>d) Reinforced insulation shall have a minimum thickness of 0.4 mm (0.016 in) when not subject to any mechanical stress which, at normal operating temperature, would likely deform or deteriorate the insulating material, or shall comply with the dielectric voltage-withstand test of Clause 18.1. Materials suitable for this type of reinforced insulation are shown in Table 6.12.104.1. Other insulating materials shall comply with the insulation equivalence test of Clause 18.104.</p>		N/A
6.13.104.2	<p>The requirements of Clause 6.12.104.1 are not applicable to insulation in thin sheet material, irrespective of thickness, unless it is used within an enclosure, it is not subject to handling or abrasion during user maintenance, and it is in accordance with one of the following requirements:</p> <p>a) supplementary insulation comprises at least two layers of material, each of which shall comply with the dielectric voltage-withstand test of Clause 18.1 for supplementary insulation;</p> <p>b) supplementary insulation comprises three layers of material for which all combinations of two layers together shall comply with the dielectric voltage-withstand test of Clause 18.1 for supplementary insulation;</p> <p>c) reinforced insulation comprises at least two layers of material, each of which shall comply with the dielectric voltage-withstand test of Clause 18.1 for reinforced insulation; or</p> <p>d) reinforced insulation comprises three layers of material for which all combinations of two layers together shall comply with the dielectric voltage-withstand test of Clause 18.1 for reinforced insulation.</p>		N/A
6.14	Accessibility of live parts		P

6.14.1.1	Accessibility of a live part shall be determined by the articulate probe test of Clause 18.4 during user maintenance and normal operation.		P
6.14.2.1	Uninsulated current-carrying parts specified in Clauses 6.13.2.2 to 6.13.2.4 may be accessible during user maintenance and normal operation. Contact with all other uninsulated current-carrying parts shall be prevented by an enclosure or barrier.		P
6.14.2.2	Electrical connections that are in the recess of a wiring device and that are covered with an electrical insulating material as shown in Table 15.1.2, Item 19, are considered to be inaccessible. The depth of the recess shall be at least 0.8 mm (0.032 in).		N/A
6.14.2.3	The live parts of a lampholder or starter holder that make the electrical connection to the lamp or starter may be accessible.		P
6.14.2.4	An uninsulated live part in the secondary circuit of an isolating transformer may be accessible if the maximum open circuit secondary voltage is 30 V rms or 42.4 V peak.		N/A
6.14.2.5	The lampholder leads of a wall mounted luminaire that are accessible from below or behind the lampholder with the luminaire fully assembled in accordance with the manufacturer's instructions shall comply with the lampholder lead pull test of Clause 17.38. Accessibility shall be determined by the articulate probe test of Clause 18.4.		N/A
6.14.3.1	Insulated current-carrying parts specified in Clauses 6.13.3.2 and 6.13.3.3 may be accessible during user maintenance and normal operation. Contact with all other insulated current-carrying parts shall be prevented by an enclosure or barrier.		N/A
6.14.3.2	The following conductors specified in Table 6.9.1 (CAN) or 6.9.2 (USA) shall be permitted to be used without additional mechanical protection: (a) flexible cord with insulation thickness equal to or greater than Type SPT-2; (b) flexible cord with insulation thickness equal to or greater than Type SPT-1, routed through the chain of a chain pendant luminaire; or (c) other conductors of minimum insulation thickness 0.80 mm (0.032 in), routed through the chain of a chain pendant luminaire.		P

6.14.3.3	<p>Flexible cords, equipment wire, and 600 V rated appliance wiring material specified in Tables 6.9.1 (CAN), 6.9.2 (USA), and 6.9.3 (USA) may be accessible if:</p> <p>(a) visible for the entire accessible length;</p> <p>(b) routed, where practicable, to a structural part of the luminaire;</p> <p>(c) secured at least every 75 mm (3 in) if stranded wire or every 100 mm (4 in) if solid wire, where practicable, to a structural part of the luminaire, or threaded through chain links of the luminaire; and</p> <p>(d) in compliance with Item (1) or (2), as follows:</p> <p>(1) accessible for no more than 100 mm (4 in) and not containing any splices; or</p> <p>(2) enclosed in a minimum 0.25 mm (0.010 in) thick glass fibre or thermoplastic sleeving, and factory-made splices using insulated crimp-type connectors are enclosed in a minimum 0.25 mm (0.010 in) thick glass fibre or thermoplastic sleeving.</p>		P
6.14.4.1	<p>The following insulated current-carrying parts may be accessible to incidental contact only during user maintenance that requires an enclosure part to be removed or opened to accomplish the operation:</p> <p>(a) the terminals of electrical components, if insulated with material that is mechanically secured in place; and</p> <p>(b) any wiring or factory-made splices employing machine-applied twist-on wire connectors or other types of insulated wire connectors that are acceptable, if not disturbed during user maintenance.</p>		P
6.14.101	<p>Wiring visible when shades, diffuser, or other parts are removed does not require additional protection, except it shall be secured away from the hot bulb and prevent any accidental handling during lamp or starter replacement.</p>		N/A
6.15	Grounding and Bonding		N/A
6.15.1.1	<p>Non-current-carrying metal parts and metallized polymeric parts that are accessible during user maintenance or component replacement without the use of tools and that can involve the risk of shock shall be bonded to ground and shall comply with the bonding circuit impedance test of Clause 18.2. A luminaire with non-current-carrying parts bonded to ground shall have the resistance of the bonding circuit tested in accordance with Clause 18.2.1. If unacceptable results are obtained, the bonding circuit shall be tested as specified in Clause 18.2.3.</p>		N/A

6.15.1.2	The following parts are not required to be bonded to ground: (a) the links of a metal chain used to support a pendant luminaire; (b) accessible non-current-carrying metal parts of luminaire components (for example, lampholders and switches) that are isolated from live parts; or (c) decorative parts, metal guards, and metal shades that do not enclose live parts.		N/A
6.15.1.3	An individual grounding conductor of a chain-and-canopy suspended luminaire shall be interwoven through the chain from the luminaire to the canopy. Installation instructions shall be provided in accordance with Table 20.1.1, Item 1.33.		N/A
6.15.2.1	A luminaire that requires grounding in accordance with Clause 6.14.1.1 shall be provided with a grounding means to provide connection to the branch circuit ground.		N/A
6.15.2.2	The grounding means shall be in the same location as the power supply connection means and shall be a pigtail lead grounding conductor, a pressure terminal connector, a wire binding screw, or the equivalent.		N/A
6.15.2.3	A grounding terminal shall not be located on a removable part, unless the removal of the part during user maintenance does not interrupt the bonding continuity.		N/A
6.15.2.4	A luminaire required to be grounded in accordance with Clause 6.14.1.1 and designed for mounting over an outlet box, but not incorporating a means to terminate the branch circuit grounding conductor, shall be provided with a mounting crossbar that has a grounding termination means.		N/A
6.15.2.5	A grounding conductor shall not be smaller than the gauge of wire used for the luminaire supply conductors and in no case less than No. 18 AWG.		N/A
6.15.2.6	A grounding conductor shall not be terminated by hardware that is likely to be removed during replacement of any luminaire components.		N/A
6.15.2.7	The grounding conductor of a pendant luminaire may be terminated by hardware that is also used to secure a lampholder or lampholder bracket when that is the only available termination point.		N/A
6.15.2.8	An insulated grounding conductor shall be identified by one of the following: (a) green; (b) green with a yellow stripe; or (c) green with a yellow tracer.		N/A

6.15.2.9	<p>A screw provided for luminaire grounding shall:</p> <ul style="list-style-type: none"> (a) not be used for any other purpose; (b) be limited to conductors of size No. 10 AWG or smaller; (c) comply with Table 6.14.2.1; (d) have a cupped washer or similar provision, or the area around the screw shall be provided with two raised areas in accordance with Figure 6.14.2.1; (e) have a green-coloured head, or the area directly adjacent to the screw shall be marked in accordance with Table 20.1.1, Item 4.4; (f) be a machine or thread-forming screw; and (g) be capable of withstanding 1.6 N•m (14 lb•in) of tightening torque. Compliance shall be determined by the ground-screw assembly strength test of Clause 17.39. 		N/A
6.15.2.10	<p>A luminaire grounding conductor may be secured to a snap-fit lampholder if the bonding between the lampholder and the luminaire complies with the bonding circuit impedance test of Clause 18.2.</p>		N/A
6.15.2.11	<p>A terminal plate intended for use with a wire binding screw shall be of metal and shall provide a minimum of two full threads engagement with the screw.</p>		N/A
6.15.2.12	<p>A pressure- or screw-type terminal block shall be suitable for the conductors involved, and grounding termination shall be marked with a grounding symbol or abbreviation in accordance with Table 20.1.1, Item 4.4.</p>		N/A
6.15.2.13	<p>A post top type luminaire that is intended to be conductively connected to a grounded pole or post and that does not comply with Clause 6.14.2.1 shall be provided with installation instructions in accordance with Table 20.1.1, Item 1.33.</p>		N/A
6.15.3.1	<p>A bonding means shall consist of one of the following:</p> <ul style="list-style-type: none"> (a) a pigtail lead bonding conductor of at least No. 18 AWG; (b) a terminal; (c) a welded, soldered, or brazed joint; (d) a screw, rivet, or welded stud; (e) a pressure terminal connector; (f) an assembly of bolt, nut, and lockwasher or starwasher, or other compressive fastener that complies with the bonding circuit impedance test of Clause 18.2; or (g) an equivalent conductive path that complies with the bonding circuit impedance test of Clause 18.2. 		N/A

6.15.3.2	The bonding of a conductive part that is coated with vitreous enamel, paint, or similar coatings can require treatment of the part, such as masking, removal of the coating at points of connection, or the use of fastening means that penetrate the surface coating. If special treatment is required or if grounding continuity is not obvious, acceptability shall be determined by the bonding circuit impedance test of Clause 18.2.		N/A
6.15.3.3	The continuity of the grounding system shall not rely on the dimensional stability of thermoplastic material unless the material has a temperature rating equal to or greater than the maximum operating temperature of the material in the luminaire and complies with the mould stress-relief test of Clause 17.4, followed by the bonding circuit impedance test of Clause 18.2.		N/A
6.15.3.4	A luminaire part shall be provided with a No. 18 AWG or larger stranded bonding conductor if the part: (a) is required to be bonded to ground in accordance with Clause 6.14.1.1; and (b) is likely to be removed from the remainder of the luminaire during user maintenance and supports a live part.		N/A
6.15.3.5	A bonding conductor shall be secured by one of the following methods: (a) a machine screw and nut; (b) a screw that threads into metal, with at least two full threads engaging; (c) rivets; or (d) equivalent means as determined by investigation.		N/A
6.15.3.6	The bonding conductor shall not be smaller than the gauge of wire used for the luminaire supply conductors and in no case less than No. 18 AWG.		N/A
6.15.3.7	A chain shall not be considered an effective bonding means.		N/A
6.15.101	The term “bonded to ground” used in CSA C22.2 No. 250.0 shall mean bonded to the grounding conductor of the supply cord.		N/A
6.15.102	All luminaires shall comply with Clause 6.15. except a) when supplied from an external Class 2 or limited power supply; or b) when employing double insulation and marked in accordance with Item 25 of Table 20.101.1 or the symbol of Figure D.102 of Annex D; or c) when marked for household use, in accordance with Item 1 of Table 20.101.1 other than those intended for i) damp or wet locations; ii) aquarium type; iii) extension hand lamps; and iv) plant grow lamps.		N/A

6.15.103	All non-current-carrying metal parts and metalized polymeric parts that are exposed or accessible during user maintenance or component replacement without the use of a tool that can involve the risk of shock shall be bonded to the grounding conductor of the supply cord.		N/A
6.15.104	A luminaire with non-current-carrying parts bonded to ground shall have the resistance of the bonding circuit tested in accordance Clause 18.2.1 of CSA C22.2 No. 250.0. If unacceptable results are obtained, the bonding circuit shall be tested as specified in Clause 18.2.3 of CSA C22.2 No. 250.0.		N/A
6.15.105	The following parts of a luminaire are not required to be bonded to the grounding conductor of the supply cord: a) the links of a metal chain used to support a luminaire; b) any accessible non-current-carrying metal part of a luminaire components e.g., lampholders and switches) that are isolated from live parts; or c) decorative parts, metal guards, and metal shades that do not enclose live parts.		N/A
6.15.106	Luminaires that are required to be bonded to ground are permitted to be provided with removable parts secured by friction or spring-retention that comply with the bonding requirements of CAN/CSA-C22.2 No. 0.4.		N/A
6.16	Supply connections		P
6.16	A portable luminaire shall be provided with a means of connection to a single branch circuit by means of a single flexible cord terminated with an attachment plug, or direct plug-in power source.		P
6.17	Wiring compartment and junction box volume for branch circuit conductors Not applicable		—
6.18	Separation of circuits		N/A
6.18.1	Factory-installed power limited wiring and branch circuit wiring that come in random contact within the luminaire shall have insulation rated for the maximum voltage that exists in any of the circuits.		N/A
6.18.101	Power limited circuit wiring or communication wiring and primary wiring located in the same wiring compartment of a luminaire that do not comply with Clause 6.17.1 of C22.2 No. 250.0 shall be permanently separated a minimum 6.4 mm by a) a reliable routing of the conductors within the luminaire; or b) a barrier that complies with Clauses 6.17.102 and 6.17.103.		N/A

6.18.102	A barrier used to separate power limited circuit wiring or communication wiring and primary circuit wiring shall be made of a) a minimum 0.4 mm thick metal bonded to other grounded parts of the luminaire; b) a minimum 0.7 mm vulcanized fibre; or c) a minimum 0.7 mm moulded polymeric material with a temperature rating suitable for the temperature involved.		N/A
6.18.103	The width of an opening between a barrier and adjacent parts of the luminaire that separate power limited wiring from primary circuit wiring shall not exceed 1.6 mm. This dimension shall be measured between the barrier and the enclosure walls, components, or the like that serve as part of the compartment.		N/A
6.19	Wire splices and connections Not applicable.		—
6.20	Interconnected units Not applicable.		N/A
7 Incandescent luminaires — supplementary requirements			
7	Incandescent luminaires — supplementary requirements		P
7.1.1	The requirements in Clause 7 are supplementary to other applicable requirements in this Standard.		P
7.1.2	A luminaire shall be marked, in a location visible during relamping, with a caution, the maximum lamp wattage, and the lamp type, in accordance with Table 20.1.1, Items 3.17 and 3.1.		P
7.1.3	More than one lamp wattage and lamp type, as applicable, may be included in the lamp replacement marking if sufficient testing is conducted to confirm that the temperature requirements are met.		P
7.1.4	An incandescent luminaire intended for connection to other than a nominal 120 V circuit shall be marked with the input line voltage in accordance with Table 20.1.1, Item 1.4.		N/A
7.2	Temperature test-exempt luminaires		N/A
7.2.1	An incandescent luminaire that complies with Clause 7.2 is considered exempt from the normal temperature of Clause 14 but shall comply with all other applicable test requirements and the factory production tests of Clause 18. The test exemptions apply also to luminaires marked for use with self ballasted lamps.		N/A

7.2.2	<p>The following incandescent luminaires are not temperature test exempt and shall be tested in accordance with the normal temperature tests of Clause 14:</p> <ul style="list-style-type: none"> a) luminaires provided with polymeric enclosures, barriers, or structural parts; b) luminaires employing tungsten-halogen lamps; c) wet location luminaires; d) clamp lamps; e) extension hand lamp luminaires; f) flood lights; and g) work lights. 		N/A
7.2.3	<p>An incandescent luminaire intended to be considered to be temperature test exempt shall comprise of all of the following:</p> <ul style="list-style-type: none"> a) open-top and open-bottom shades; b) medium base lampholders without an enclosing cup or similar housing; c) lamps of the reflector or non reflector type, mounted base down and rated 300W and less; and d) power supply cords with the following temperature ratings: <ul style="list-style-type: none"> i) 105 °C minimum temperature rating when using lamps rated maximum 300W; and ii) 60 °C minimum temperature rating when using lamps rated maximum 250W. 		N/A
7.3	Tungsten-halogen luminaires		N/A
7.3.1.1	<p>A luminaire employing tungsten-halogen lamps as the primary light source shall be provided with a lamp containment barrier that will contain major particles resulting from a ruptured lamp, unless:</p> <ul style="list-style-type: none"> (a) the lamp manufacturer declares on the lamp package that the lamp is suitable for use in an open luminaire; or (b) the luminaire is intended to be used with a lamp provided with an integral outer lamp envelope, and the lamp manufacturer does not provide a caution requiring an additional lamp containment barrier. 		N/A
7.3.1.3	<p>A lamp containment barrier shall be secured in position by one of the following methods:</p> <ul style="list-style-type: none"> (a) mechanical means that produces an interference fit; (b) physical fit; or (c) other similar means. 		N/A
7.3.1.4	<p>A luminaire with a removable lamp containment barrier that is required to be removed during user maintenance shall be marked to keep the barrier in place, in accordance with Table 20.1.1, Item 3.12.</p>		N/A
7.3.1.5	<p>Open holes in a lamp containment barrier that are located at points where particles from a ruptured lamp are likely to drop and rest or that provide a direct line of sight to the filament from the outside the luminaire shall not permit the passage of a 3.3 mm (0.130 in) diameter rod.</p>		N/A

7.3.1.6	A lamp containment barrier shall be constructed of the following materials: (a) ceramic; (b) glass in accordance with Clause 7.3.1.7; (c) metal screen; (d) metal having minimum thickness of 0.41 mm (0.016 in); or (e) polymeric material in compliance with Clause 7.3.1.8.		N/A
7.3.1.7	The part of a glass containment barrier where particles from a ruptured lamp are likely to drop and rest shall have a minimum thickness of: (a) 2.4 mm (0.095 in) for luminaires rated less than 100 W; and (b) 3.0 mm (0.118 in) for luminaires rated for 100 W or more.		N/A
7.3.1.8	A polymeric lamp containment barrier, where particles from a ruptured lamp are likely to drop and rest, shall comply with the lamp containment barrier melt-through test of Clause 17.29 or the five-inch flame test of Clause 17.3.		N/A
7.3.2.4	A disconnect switch provided on a luminaire shall disconnect all ungrounded supply conductors, and the OFF position shall be marked on or adjacent to the switch.		N/A
7.3.3.1	The requirements in Clause 7.3.3 apply to a luminaire employing a tungsten-halogen lamp as the primary light source and are not intended to cover auxiliary light sources within the same luminaire. These requirements shall not apply to photographic equipment with internal tungsten-halogen lamps.		N/A
7.3.3.2	The lampholder voltage for a luminaire employing a lamp with a lamp base configuration shown in Table 7.3.3.1 shall be 30 V rms, 42.4 V peak, or less, regardless of the nominal luminaire input voltage.		N/A
7.3.3.3	The lampholder voltage for a luminaire employing a lamp with a lamp base configuration shown in Table 7.3.3.2 shall be a nominal operating voltage of 120 V.		N/A
7.3.3.4	An adapter shall not be provided to convert a luminaire employing a lamp with a lamp base configuration shown in Table 7.3.3.2 (for use at a nominal operating voltage of 120 V) to accommodate a lamp with a lamp base configuration shown in Table 7.3.3.1 (for use at 30 V rms, 42.4 V peak, or less) unless the adapter is provided with an integral, isolated, step-down transformer or voltage converter.		N/A
7.3.101	Torchiere-floor-type luminaires		—

7.3.101.1	A torchiere-floor-type luminaire employing a double-ended tungsten-halogen lamp or a lamp other than the conventional type with an E26 medium screwbase shall comply with the abnormal operation test of Clause 16.2 and be marked for keeping away from combustible materials in accordance Item 12 of Table 20.101.1. <i>Note: A conventional incandescent lamp is an incandescent lamp that is not of the tungsten-halogen type.</i>		N/A
7.3.101.2	A torchiere, floor type luminaire shall be limited to a maximum wattage of 75W for luminaires with one lamp and a maximum of 100W for luminaire with more than one lamp.		N/A
7.3.101.3	Torchieres shall be equipped with a power limiting device to prevent from exceeding the above limits.		N/A
7.3.102	Tests		N/A
7.3.102.1	An incandescent luminaire shall comply with the applicable normal temperature test of Clause 14 and the applicable abnormal temperature tests of Clause 16.		N/A
7.3.102.2	Portable incandescent luminaires, having a light source that may be directed or positioned against adjacent or supporting surface, including tungsten-halogen, shall comply with adjacent surface temperature test of Clause 15.102 and shall be marked in accordance with item 20 of Table 20.101.1. Alternatively to the marking, the pictogram in accordance with Annex D, Clause D.101 may be used.		N/A
8	Fluorescent luminaires – supplementary requirements		N/A
8.1.1	The requirements in Clause 8 are supplementary to other applicable requirements in this Standard.		N/A
8.2.1	A fluorescent luminaire shall use a thermally protected ballast, except that a non-thermally-protected simple reactance ballast may be used: (a) with straight tubular lamps; or (b) when the luminaire is marked for outdoor use only, in accordance with Table 20.1.1, Item 2.4.		N/A
8.3.1	When the supply cord of a luminaire permits the cord to be pushed back into the enclosure, resulting in a spacing between the cord and the ballast of less than 76 mm (3 in), the supply cord shall be rated for at least 90 °C or for the temperature of any component it can contact, whichever is greater.		N/A
8.3.2	Conductors shall have a minimum temperature rating in accordance with Table 8.3.1 or the temperature measured during the normal temperature test of Clause 15.		N/A
8.4.1	Lampholders shall be of a type and voltage rating suitable for the lamp and ballast intended to be used.		N/A

8.4.2	Lampholders of the bipin, miniature, medium, or mogul size shall have a voltage rating greater than the output voltage or voltage to ground, if marked on the ballast.		N/A
8.4.3	The voltage rating of lampholders intended for use with a simple reactance ballast shall be greater than the supply voltage.		N/A
8.4.4	Circuit-interrupting-type lampholders required by the ballast marking shall be connected in accordance with the ballast wiring diagram.		N/A
8.4.5	Lampholders of the single-pin, slimline type shall have the circuit-interrupting mechanism in the stationary lampholder.		N/A
8.4.6	Lampholders of the circuit-interrupting type shall be connected in the line side of the ballast and have a voltage rating greater than the supply voltage.		N/A
8.4.7	The lampholders connected to the high voltage ballast conductors shall be rated: (a) 600 V minimum; (b) 250 V and provided with a supplementary insulation consisting of 0.4 mm (0.016 in) thick material of fibre or phenolic composition; or (c) 250 V and provided with a 2 mm (0.078 in) permanent air space between the back of the lampholder and the metal of the luminaire.		N/A
8.4.8	Lampholders intended for use with HO (800 mA) and VHO (1500 mA) lamps shall be the recessed double contact type.		—
8.5.1	A luminaire that complies with the applicable requirements of Clause 8.5 is exempt from the normal temperature test of Clause 14 and the abnormal temperature test of Clause 16.		N/A

8.5.2	<p>The following constructions are not temperature test exempt:</p> <ul style="list-style-type: none"> (a) Type IC recessed luminaires; (b) luminaires intended for mounting in non-residential exhaust ducts and hoods above cooking equipment; (c) luminaires intended for operation in elevated ambient temperature; (d) luminaires provided with polymeric enclosures or water shields with a mechanical temperature rating less than 105 °C; (e) luminaires marked for through wiring that do not comply with Clause 8.5.3; (f) luminaires employing more than one ballast spaced less than 25 mm (1 in) end to end or 100 mm (4 in) side to side; (g) luminaires with wire whose insulation temperature rating does not comply with Table 8.3.1; (h) luminaires provided with a non-thermally-protected ballast, rated for use with single-ended fluorescent lamps; (i) wet locations luminaires with gaskets or bushings; (j) luminaires provided with a thermally protected ballast located less than 75 mm (3 in) from a knockout or other power supply entry, unless the luminaire is marked for 90 °C supply conductors in accordance with Table 20.1.1, Item 1.1; and (k) luminaires employing single-ended fluorescent lamps. 		N/A
8.5.3	<p>A luminaire intended for use with through wiring is temperature test exempt under the following conditions:</p> <ul style="list-style-type: none"> (a) the wiring compartment is at least 13 mm (0.5 in) from the recessed housing; and (b) there are no other heat-producing components mounted on or in the wiring compartment. 		N/A
8.6.4	<p>A luminaire designed for use with single-ended, compact fluorescent lamps and having non-thermallyprotected ballasts shall be marked to indicate the lamps intended, in accordance with Table 20.1.1, Item 3.21.</p>		N/A
8.6.5	NOT APPLICABLE		N/A
8.8.1	<p>A luminaire with instant-start ballast(s), incorporating bipin lampholders shall:</p> <ul style="list-style-type: none"> (a) be constructed with a ballast(s) identified as Type CC; or (b) be constructed with lampholders intended for use with instant-start electronic ballasts in accordance with Clause 4.1. Lampholders marked with a circled "I" comply with these requirements. 		N/A
8.101.1	<p>Portable fluorescent luminaires with a through-cord ballast shall comply with Clauses 8.101.2 to 8.101.6.</p>		N/A

8.101.2	A ballast that is connected in a flexible cord for use with a portable lamp (120 nominal input voltage) shall not involve output potentials in excess of 300 V during starting or normal operation. If the ballast controls more than one lamp, the lamps shall be connected in series with each other.		N/A
8.101.3	The ballast equipped with a flexible cord shall not exceed 1.13 kg. If the ballast is less than 0.45 kg, the cord shall not be lighter than Type SPT-2 and in no case less than the type specified in Table 6.9.101.1; otherwise, the cord shall be minimum hard usage type.		N/A
8.101.4	A suitable attachment plug cap shall be provided on the supply end of the cord. The overall length of the cord and ballast shall be not less than 1.8 m and the length of the cord between the cap and the ballast shall be not less than 0.6 m and not more than 1.2 m.		N/A
8.101.5	A ballast designed for through-cord use and having an output voltage greater than 150 V (maximum output voltage) shall be grounded. A suitable three-conductor plug cap, supply cord, and load cord shall be used to enable the luminaire to be grounded.		—
8.101.6	The voltage between any output terminal or lead and any input terminal or lead of a ballast intended for use in a portable lamp shall not be more than 300 V when the output circuit is open and when the ballast is energized at maximum rated input voltage and rated frequency.		N/A
8.102	A portable fluorescent luminaire shall comply with the applicable normal temperature test of Clause 14 and the applicable abnormal temperature tests of Clause 16.		N/A
8.103	Fluorescent luminaires shall be marked with the frequency or for AC use only in accordance with Item 1.4 or 3.7 of Table 20.1.1 of Standard C22.2 No. 250.0.		N/A
9			
9	HID luminaires — supplementary requirements		N/A
9.2.1	Pulse Rated Lampholder		—
9.2.2	Conductor Insulation Rating for Pulse Rated Lampholder- Min. 600V		N/A
9.3.1	Lamp Containment Barrier (LCB) for Luminaires with MH Lamps		N/A
9.3.2	LCB Secured		N/A
9.3.3	Size of Open Holes in LC – 3.3mm Max.		N/A
9.3.4	Lamp Containment Barrier Material		—
9.3.5	Glass Containment Barrier Thickness		N/A
9.3.6	Glass Containment Barrier – Comply with the LCB Thermal Shock Test Clause 17.28		N/A
9.3.7	Polymeric LCB – Comply with the Melt-Through Test Clause 17.29		N/A

9.4.1.1	UV Attenuation Barrier Required if MH Lamp Has No Integral UV Blocking Outer Glass Envelope		N/A
9.4.1.2	UV Attenuation Barrier Materials		—
9.4.1.3	No Open Holes Permitting Direct Viewing of the Light Source		—
9.4.1.4	Interlock Switch Required		N/A
9.4.2.1	UV Attenuation Barrier Glass Types		N/A
9.4.2.2	UV Attenuation Barrier Impact Test – Clause 19.21		N/A
9.5.1	Lamp Terminals Not Accessible During Relamping		N/A
9.5.1	(CAN) Caution Marking Not Required		N/A
9.5.2	Interlock Switch – Interlock Switch Endurance Test – Clause 18.3		N/A
9.5.3	(CAN) No Interlock Switch - Mark to Disconnect Power Before Servicing		N/A
9.6.1	Relamping Marking – ANSI Code		—
9.6.2	Relamping Marking – No ANSI Code -		N/A
9.6.3	Relamping Marking –Multiple Lamp Types		N/A
9.6.4	Relamping Marking – None Req'd. if LPS Lamp		N/A
9.6.5	Relamping Marking – MH Lamp, No LCB		N/A
9.1.101	Open circuit voltage shall not exceed 1000 V		N/A
9.1.102	It shall not be used in dwelling if open circuit voltage exceed 300V		N/A
9.1.103	Complied with normal (clause 14) and abnormal temperature test (clause 15)		N/A
9.1.104	Marked with the frequency or AC use only		N/A
10(new) LED luminaires – supplementary requirements			
10.1.1	The requirements in this clause are supplemental requirements for LED luminaires.		P
10.2 Lampholders			
10.2.1	A lampholder shall have an electrical rating suitable for the LED lamp load to be used.		P
10.3 Printed wiring boards			
10.3.1	A printed wiring board shall comply with the requirements in UL 8750 and CSA C22.2 No. 250.13.		N/A
10.5 Markings			
10.5.1	A luminaire having an integral LED driver shall be marked with the input rating in volts, frequency in hertz, and total amperes or watts, in accordance with Table 20.1.1, Item 1.3.		N/A
10.5.2	A luminaire intended for connection to a remote LED driver that requires a driver with a constant voltage output shall include the following marking information on the luminaire in the format S16-L3: constant voltage – voltage; nature of the supply (AC or DC); frequency (for ac rating only); and current or wattage.		N/A

10.5.3	A luminaire intended for connection to a remote LED driver that requires a driver with a constant current output shall include the following marking information on the luminaire in the format S16-L3: constant current – current; nature of the supply (AC or DC); frequency (for ac rating only); and voltage or wattage.		N/A
10.5.4	Luminaires having a replaceable lamp of the type specified in Annex G shall be marked with a lamp replacement marking as noted in Annex G.		P
10.5.5	A luminaire having a replaceable lamp of a type other than those specified in Annex G shall be marked, in a location visible during lamp replacement: “CAUTION – RISK OF FIRE. REPLACE ONLY WITH LAMP MODEL _____, MANUFACTURED BY _____”. The marking shall be in the format S24-L1.		N/A
10.6.2 (new)	A cord pendant luminaire shall be provided with a flexible cord type as specified in Clause 11.2.12 for connection to the branch circuit.		N/A
10.101	LED assemblies and controlgear shall comply with applicable requirements of the following standards: a) CSA C22.2 No. 61347-2-13 and CSA C22.2 No. 62031; or b) CSA C22.2 No. 250.13.		N/A
10.102	LED light sources that generate coherent light shall be verified in accordance with CAN/CSA-C22.2 No. 62471 to be within the Risk Group 0.		N/A
10.103	A luminaire using lasers that generate coherent light shall be verified in accordance with CAN/CSA-E60825-1 to be within the classification of Class 1 laser products.		N/A
11			
11	Surface-mounted luminaires — supplementary requirements		N/A
11.2.12	This Clause of CSA C22.2 No. 250.0 shall be applicable except as follows: <i>Cord-suspended luminaires weighing no more than 1.1 kg may use an unjacketed, not-for-hard-usage cord per Table 6.9.101.1.</i>		N/A
11.2.13	A joint in a circular chain link shall be welded. A joint in a chain link of another shape shall not be located within 30 degrees of the vertical, as shown in Figure 11.2.1, unless welded.		N/A
11.4.2	Open holes other than those specified in Clause 11.4.1 shall be considered to be general purpose open holes and shall comply with the requirements of Clause 11.4.3.		N/A

11.4.3	<p>General purpose open holes, such as ventilating open holes, shall be located more than 13 mm (0.5 in) from the mounting surface of a luminaire and shall comply with the following:</p> <p>(a) The area of each open hole shall not exceed 10 cm² (1.5 in²).</p> <p>(b) The total area of holes shall be not more than 15% of the total area of the surface in which the hole or holes are located.</p> <p>(c) The open holes shall not be located in the mounting surface, in a canopy, or directly below electrical parts, as shown in Figure 11.4.1, that are required to be enclosed, unless the parts</p> <p>(1) are protected by a baffle in accordance with Clause 5.8;</p> <p>(2) have demonstrated compliance with the applicable normal and abnormal test requirements; or</p> <p>(3) are constructed so as not to present a risk of fire under any foreseeable conditions.</p>		N/A
11.4.4	<p>Luminaire mounting holes may be any shape. A maximum of four open holes shall be permitted within the area directly below the outlet box opening in accordance with Figure 11.4.1. The maximum area of each hole shall be 2.6 cm² (0.41 in²). Two additional holes shall be permitted for each 610 mm (24 in) of luminaire length in excess of 1270 mm (50 in).</p>		N/A
11.4.5	<p>Component mounting holes may be provided in the back enclosure, facing the luminaire mounting surface, provided that they comply with the following:</p> <p>(a) The maximum diameter of any open holes is 7.9 mm (0.313 in).</p> <p>(b) The maximum area of each unclosed portion of a slot used to accommodate components mounted in place or of an unused slot intended for accommodation of alternate components is 0.32 cm² (0.05 in²).</p> <p>(c) The maximum total area of all unused open holes for alternate component mounting is 5.16 cm² (0.80 in²).</p>		N/A
11.4.6	<p>Component mounting holes that are not closed off shall not be located within the area directly below the outlet box opening shown in Figure 11.4.1, unless baffled in accordance with Clause 5.8.</p>		N/A

11.4.7	<p>A luminaire with a canopy that covers 1160 cm² (180 in²) or more of the mounting surface shall be provided with a back enclosure. The back enclosure shall comply with the enclosure requirements of Clause 5.3.1. An open hole in the back enclosure shall:</p> <p>(a) if circular, have a maximum area of 1160 cm² (180 in²) and have a maximum diameter of 380 mm (15 in), as shown in Figure 11.4.2; or</p> <p>(b) if not circular, have a maximum area of 1160 cm² (180 in²) and a maximum linear length, usually diagonal, of 660 mm (26 in), as shown in Figure 11.4.3.</p>		N/A
11.4.8	<p>A luminaire with a canopy that covers less than 1160 cm² (180 in²) of the mounting surface and has the dimensions specified in Clause 11.4.7, Item (a) or (b), is not required to be provided with a back enclosure.</p>		N/A
11.4.9	<p>An open hole in a luminaire enclosure need not comply with the requirements of Clause 11.4.5 or 11.4.7, provided that the open hole is closed off by a noncombustible mounting surface. The luminaire shall be marked for mounting on a noncombustible surface, in accordance with Table 20.1.1, Item 2.6. This marking is not required when the opening is covered by a glass fibre pad that complies with the glass fibre requirement of Clause 5.18.</p>		N/A
11.4.10	<p>An open hole or pair of holes may be provided for each stem or chain of a pendant device if each hole is closed by a suspension device. Knockouts may be provided in addition to, or in lieu of, the open hole or holes.</p>		N/A
11.4.11	<p>An opening for a pull switch in a sheet metal drop canopy secured by set screws shall be located within 90 mm (3.5 in) of the centre of the canopy.</p>		N/A
11.4.12	<p>An opening for a pull switch in a sheet metal drop canopy secured by set screws that is reinforced by a minimum 3.2 mm (0.125 in) thick metal bar shall be located within 90 mm (3.5 in) of the means attaching the reinforcing bar to the canopy.</p>		N/A
11.101	<p>A free-standing luminaire such as a floor or table lamp shall be provided with weights or the equivalent in the supporting base to prevent overturning and shall be capable of withstanding the stability test of Clause 17.102.</p>		N/A
11.102	<p>Openings for pin-up or wall-mounted luminaires shall comply with the following:</p> <p>a) be located, such that any support hook, screw, or equivalent device is prevented from contacting electrical parts; and</p> <p>b) not exceed two in number, with at least one hole or slot provided for each 2.3 kg of the luminaire.</p>		N/A

11.103	A direct plug-in device, such as a luminaire power supply, shall comply with the maximum tipping moment test of Clause 17.101, Table 17.101.1, and Figure 17.101.1. Note: <i>A direct plug-in device that complies with CSA C22.2 No. 223 is not required to be tested.</i>		N/A
11.104	Convertible luminaires		N/A
11.104.1	A convertible luminaire shall comply with requirements of this Standard.		N/A
11.104.2	After conversion is performed in accordance with installation instructions provided with the unit, the product shall comply with requirements of CSA C22.2 No. 250.0.		N/A
11.104.3	A convertible luminaire shall be provided with parts required for conversion, such as a canopy, crossbar, connectors, and other items as applicable.		N/A
11.104.4	A portable surface type luminaire shall comply with the applicable normal temperature test of Clause 14 and the applicable abnormal temperature tests of Clause 16.		N/A
13 Miscellaneous luminaires — supplementary requirements			
12.1	Aquarium luminaires		N/A
12.1.1	An aquarium-type luminaire shall be so designed that, under normal conditions of use, water will not contact lamps, lampholders, switches, or any other wiring device.		N/A
12.1.2	The lampholder body in luminaires intended for use in aquariums shall be of phenolic composition, glazed porcelain, or other material having equivalent moisture resistant material.		N/A
12.1.3	An aquarium-type luminaire shall have flanges or other means to prevent it from being accidentally dislodged into the water.		N/A
12.1.4	Aquarium luminaires shall be grounded when the construction involves non-current-carrying metal parts that can become energized during general use or servicing.		N/A
12.1.5	Aquarium luminaires shall have a warning to indicate that relamping or other servicing shall not be carried out while the luminaire and/or the surroundings are damp or wet unless the plug is disconnected from the power supply, in accordance with Item 8 of Table 20.101.1.		N/A
12.1.6	Temperature test for aquarium luminaire shall be performed in accordance with Clause 15.103.		N/A
12.1.7	Aquarium luminaires shall comply with the humidity test of Clause 17.103.		N/A
12.2 Cabinet luminaires and under-cabinet luminaires			
12.2.1	Cabinet luminaires		N/A

12.2.1.2	These requirements apply to surface-mounted and recessed-mounted, cord-connected attachment plug equipped, or permanently connected luminaires intended for installation into open or closed cabinets, such as china hutches, bookcases, bars, consoles, bed headboards, and similar locations. A power supply shall be of the attachment plug-equipped, cord-connected type or direct plug-in type		N/A
12.2.1.3	Luminaires complying with the following requirements shall be marked as cabinet lights in accordance with Item 17 of Table 20.101.1.		N/A
12.2.1.4	A power supply cord shall be of at least Type SPT-2 and rated for 105 °C. The length shall not be less than 1.5 m and when provided with a polarized attachment plug it shall be marked to match wide blade of plug to wide slot in accordance with Item 4.5 of Table 20.1.1 of CSA C22.2 No. 250.0.		N/A
12.2.1.5	A cabinet luminaire intended to operate at other than 120 V, such as an extra low voltage system, shall be provided with a Class 2 power supply which complies with the requirements of CAN/CSA-C22.2 No. 223 and be marked for Class 2, in accordance with Item 13 of Table 20.101.1.		N/A
12.2.1.6	A cabinet luminaire (extra low voltage system) shall be provided with a wiring harness and connectors such as prewired plug-in type, insulation piercing type, insulated terminal blocks, or a type investigated and deemed suitable for the application. Twist-on or crimp-on wire type wire connectors shall not be used for this application.		N/A
12.2.1.7	A cabinet luminaire that from its appearance could be mounted in various positions or a variety of locations shall be tested with the luminaire mounted in any or all the positions or locations and shall be marked to indicate inside-cabinet mounting, in accordance with Item 14 of Table 20.101.1.		N/A
12.2.1.8	A cabinet luminaire intended for surface-mounting only shall be subject to the normal-temperature test of Clause 15.104 and the abnormal-temperature test of Clause 16.3 and shall be marked to indicate surface mounting only, in accordance with Item 15 of Table 20.101.1.		N/A
12.2.1.9	A cabinet luminaire intended for recess mounting only shall be subject to the normal-temperature test of Clause 15.105 and shall be marked to indicate recess mounting only, in accordance with Item 16 of Table 20.101.1.		N/A
12.2.1.10	A cabinet luminaire intended for recessed mounting with marked spacings shall be marked in accordance with item 18 of Table 20.101.1 shall be subject to the normal temperature test of Clause 15.105 with a test box constructed in accordance with Clause 19.105.		N/A
12.2.1.11	Cabinet luminaires shall be provided with installation instructions and shall include the cautions in accordance with item 19 of Table 20.101.1.		N/A
13.2.2	Under-cabinet luminaires.		N/A

13.2.2.1	These requirements apply to surface-mounted under cabinet luminaires, marked as under cabinet lights in accordance with Item <u>Item 30 of Table 20.101.1</u> for installation under a cabinet, shelf, or similar structural surface. A power supply shall be of the cord-connected type or direct plug-in type.		N/A
13.2.2.2	Under-cabinet luminaires shall also comply with the requirements of Clauses 13.2.1.4 to 13.2.1.6.		N/A
13.2.2.3	Under-cabinet luminaires shall comply with the following tests, as applicable: a) Normal-temperature test for surface-mounted under-cabinet luminaires, Clause 15.106; and b) Abnormal-temperature test for surface-mounted under-cabinet luminaires, Clause 16.5.		N/A
13.3	Clamp-on luminaires		N/A
13.3.1	The requirements in Clause 13.3 are supplementary to other applicable requirements in the Standard and apply to luminaires provided with a clamping device as the mounting means.		N/A
13.3.2	Lampholders bodies shall be of an insulating material such as phenolic composition or porcelain.		N/A
13.3.3.1	The power supply cord shall be in accordance with Table 6.9.101.4 for this type of luminaire.		N/A
13.3.3.2	The individual conductors inside the lampholder body shall be protected by fiberglass sleeving.		N/A
13.3.4	In accordance with assembly instructions, clamp that will support a luminaire on a vertical surface, such as a spring clamp, threaded clamp, magnetic type, or similar type, shall comply with the mounting security test of Clause 17.110.		N/A
13.3.5	In additional to other applicable marking, clamp-on utility luminaires shall be marked in accordance with Item 10 of Table 20.101.1.		N/A
13.4	Extension handlamps		N/A
13.4.1	Clause 13.4 applies to cord connected extension handlamps intended for use in dry or damp locations, and intended to operate in non-hazardous locations on a supply circuit not exceeding 120 V.		N/A
13.4.2	The enclosure which encloses live parts shall be constructed of fire resistant material and comply with Clause 13.4.2.1.		N/A
13.4.2.1	Enclosures of polymeric material shall comply with the a) polymeric material requirements of Clause 5.7; b) polymeric impact test of Clause 17.41 of CSA C22.2 No. 250.0; c) deflection test of Clause 17.107; and d) mould stress relief test of Clause 17.4 of CSA C22.2 No. 250.0.		N/A
13.4.3.1	An extension lamp shall be provided with a guard for the lamp which complies with the abnormal extension handlamp enclosure integrity test of Clause 17.105 or be marked in accordance with Item 6 of Table 20.101.1.		N/A

13.4.3.2	Nonmetallic lamp guards shall comply with accelerated aging test of Clause 17.109.		N/A
13.4.4.1	A hook or the equivalent provided as part of the lamp guard for temporary support of the extension handlamp shall comply with the loading test of Clause 17.15 of CSA C22.2 No. 250.0 with a load of three times the weight to be supported.		N/A
13.4.4.2	An extension handlamp shall not have holes, projections or other features that could be used for permanently mounting the device.		N/A
13.4.5.1	A lampholder shall a) be complete with handle; b) have a jacket or cover of insulating material over the screw shell suitable for the intended application; and c) when marked for damp location in accordance with Item 2.2 of Table 20.1.1 of CSA C22.2 No 250.0, shall have i) lampholder body of phenolic or other material having equivalent moisture-resistant properties; and ii) have a copper or copper alloy screw shell which complies with Clause 4.10.3.4 of CSA C22.2 No. 43.		N/A
13.4.5.2	A switch, if provided, shall a) if a single-pole switch, not be connected in the neutral grounded conductor; and b) comply with CAN/CSA-C22.2 No. 61058-1, CSA C22.2 No. 55, or CSA C22.2 No. 111 as applicable.		N/A
13.4.5.3	A switch shall not control a receptacle outlet.		N/A
13.4.5.4	An extension handlamp shall not include a through-cord or pendant switch.		N/A
13.4.5.5	The flexible cord shall be permanently attached and be at least a) type SOW or STW when marked for heavy duty use in accordance with Item 4 of Table 20.101.1; b) type SJOW or SJTW when marked for light duty use in accordance with Item 2 of Table 20.101.1; or c) type SVO or SVT when intended to be incorporated in a self-retracting reel marked for household use in accordance with Item 3 of Table 20.101.1.		N/A
13.4.5.6	The conductors of a flexible cord shall be a) at least No 18 AWG or at least No 16 AWG with a grounding conductor when incorporating a receptacle; and b) not greater than 15.5 m in length.		N/A
13.4.5.7	A receptacle, if provided, shall be a 125 V, 2-pole, 3-wire 5-15R, grounded type and be marked for the maximum allowable load in amperes in accordance with Item 3.4 of Table 20.1.1 of CSA C22.2 No. 250.0. There shall be not more than two receptacles provided in an extension handlamp.		N/A

13.4.6	The strain relief shall comply with the strain relief test of Clause 17.21.1.		N/A
13.4.7	A reel incorporating an extension hand lamp shall comply with the requirement for reels in CSA C22.2 No. 21.		N/A
13.4.8	An extension hand lamp incorporating a fluorescent lamp shall be provided with thermally protected ballast in accordance with CAN/CSA-C22.2 No. 74 and be limited to an open circuit voltage of 300 V.		N/A
13.4.9	An extension handlamp for use with a self ballasted compact fluorescent lamp shall be provided with a lamp in compliance with CSA C22.2 No. 1993.		N/A
13.4.10	An extension handlamp shall comply with the following tests: a) the rating test of Clause 18.102; b) the normal temperature test of Cause 14; c) the dielectric voltage withstand test of Clause 18.1; d) the leakage current test of Cause 18.101; e) the polymeric impact test of Clause 17.41 of CSA C22.2 No. 250.0 f) the deflection test of Clause 17.107 g) the mould stress of Clause 17.4 of CSA C22.2 No. 250.0; h) the drop test of Clause 17.104; i) the grounding and bonding test of Clause 18.2 of CSA C22.2 No. 250.0 if applicable; j) the abnormal extension handlamp enclosure integrity test of Clause 17.105 when not marked in accordance with Item 6 of Table 20.101.1 to prevent the risk of contact with flammable liquids; and k) the strain relief test of Clause 17.21.1.		N/A

13.4.11	<p>Each extension handlamp shall be marked in accordance with Clause 20. The following additional markings shall appear on each extension hand lamps:</p> <ul style="list-style-type: none"> a) disconnect prior to servicing, Item 22 of Table 20.101.1; b) do not submerge, Item 9 of Table 20.101.1; c) rating of a receptacle as specified in Clause 6.5, Item 3.4 of Table 20.1.1 of CSA C22.2 No. 250.0; d) an extension lamp that does not comply with Clause 13.4.10 (j), marked in accordance with Item 6 of Table 20.101.1; e) an extension handlamp equipped with a polarized 2-pole 2-wire parallel blade attachment plug cap, marked in accordance with Item 4.5 of Table 20.1.1 of CSA C22.2 No. 250.0; f) the applicable duty rating of Item 2 or 3 of Table 20.101.1; g) extension handlamp with cord reel, in accordance with Item 4 of Table 20.101.1; and h) Item 7 of Table 20.101.1. 		N/A
13.5	<i>Portable luminaire kits and hobby type lamps</i>		N/A
13.5.1	<p>Clause 13.5 applies to the basic, household-type, incandescent or fluorescent, table, floor, and swag-type luminaires intended for the hobby or craft industry and supplied as an unassembled kit with explicit assembly instruction. The decorative portion and the open top and open top and open bottom shade are supplied by the hobby craft individual.</p>		N/A
13.5.2	<p>The electrical components of the lamp kit shall comply with their applicable component standard, and include</p> <ul style="list-style-type: none"> a) for incandescent-type luminaires, a single, base down, medium base metal shell or phenolic body type, lampholder that complies with Clause 13.5.6.1; b) for fluorescent-type luminaires, a compact fluorescent-type lampholder of the 13 W or 16/22 W type which complies with Clause 13.5.6.1; c) for incandescent luminaires, a power supply cord in accordance with Table 6.9.101.4 for the appropriate type of luminaire; d) for fluorescent-type luminaires, a direct plug-in type lamp control device which complies with Clause 13.5.6.3; e) a strain relief bushing, or instructions to provide an adequate strain relief, which is in accordance with Clause 5.15; and f) a detailed assembly instruction sheet. 		N/A

<p>13.5.3</p>	<p>The mechanical components to be supplied by the hobby or craft person in accordance with the instructions shall consist of the following:</p> <ul style="list-style-type: none"> a) an open top and open bottom shade of a size specified in the instructions; b) a harp assembly to coincide with the shade size; c) a centre threaded pipe wireway of a size to coincide with the decorative component; d) a base of sufficient size to ensure the assembled lamp will comply with the stability test of Clause 17.102, and shall not have any burrs or sharp edges which could damage the power supply cord insulation; and e) the required hardware to adequately assemble the luminaire 		<p>N/A</p>
<p>13.5.4</p>	<p>The electrical components of an incandescent swag kit shall include:</p> <ul style="list-style-type: none"> a) a single, base-up, medium base, phenolic body type, lampholder which complies with Clause 13.5.6.1c); b) a power supply cord, in accordance with Table 6.9.101.4 for swag-type luminaires; c) a strain relief bushing or instructions to provide an adequate strain relief, which is in accordance with Clause 5.15; and d) a detailed assembly instruction sheet. 		<p>N/A</p>
<p>13.5.5</p>	<p>The mechanical components to be supplied in the swag kit shall be</p> <ul style="list-style-type: none"> a) chain in accordance with Clause 5.11.106; b) two hooks set in accordance with Clause 5.11.106; and c) cord supports in accordance with Clause 5.11.107. <p>Note: An assembly for indoor dry locations only, consisting of a length of flexible cord, an attachment plug, a lampholder with a side outlet for a supply cord and means for mounting the assembly (e.g., a short length of threaded nipple and a cork bottle stopper) in the neck of a bottle, or the equivalent need not have means for mounting or support.</p>		<p>N/A</p>

13.5.6.1	<p>The lampholder in a kit shall be of the following:</p> <p>a) for incandescent table and floor-type luminaires, a single, medium, (E26) base, metal shell or phenolic shell with threaded cap and set screw and provided with wire binding screw terminals or equivalent quick wire type such as pushwire or insulation piercing type. The lampholder shall be mounted in the base down position only;</p> <p>b) for fluorescent, table and floor-type luminaires, a single, 13 or 16/22 W, two-piece type, compact fluorescent-type lampholder with push-wire terminals; or</p> <p>c) for incandescent swag-type luminaires, a medium base, phenolic, or porcelain body-type lampholder.</p>		N/A
13.5.6.2	<p>The power supply cord shall consist of the following:</p> <p>a) a Type SPT-1 or NISPT-1 for table type;</p> <p>b) a Type SPT-2 or NISPT-2 for floor type;</p> <p>c) be a length of at least 4.6 m (181 in), Type SPT-2, or NISPT-2 for swag-type luminaires, with the free end of the cord extending between 0.3 m (11.8 in) and 1.5 m (59.1 in) beyond the free end of the chain;</p> <p>d) have conductors of minimum No. 18 AWG;</p> <p>e) have a minimum insulation rating of 105 °C;</p> <p>f) have a moulded-on polarized-type attachment plug cap of the NEMA 1-15P configuration; and</p> <p>g) have any stripped conductors tinned or mechanically secured.</p>		N/A
13.5.6.3	<p>The lamp control device (ballast) shall be a direct plug-in-type, with a 1-15P blade configuration and be rated for the lamp employed. The wiring between the lamp control device and the lamp shall comply with Clause 13.5.6.2a) and b) as applicable.</p>		N/A
13.5.6.4	<p>A through-cord switch may be supplied as an optional feature as an integral part of the supply cord or as a separate component to be assembled to the supply cord during the assembly of the luminaire.</p>		N/A
13.5.7	<p>A lamp kit shall be assembled with representative decorative, mechanical parts and shade in accordance with the instructions provided with the kit. If the instructions include multiple methods of assembly, each of the methods shall be represented and evaluated. The assembled luminaire shall be examined for compliance with all applicable requirements of this Standard.</p>		N/A

13.5.8	The lamp kit shall be provided with the following labels and instructions regarding their application: a) the lamp replacement marking in accordance with Item 3.1 of Table 20.1.1 of CSA C22.2 No. 250.0; and b) the polarized plug marking in accordance with Item 4.5 of Table 20.1.1 of CSA C22.2 No. 250.0.		N/A
13.5.9.1	The text of the instruction sheet shall comply with Item 1.31 of Table 20.1.1 of CSA C22.2 No. 250.0 and include at least the following detailed instructions: a) assembly instructions, assembly drawings, a parts list, and the warning of Item 28 of Table 20.101.1; b) wording to ensure that all metal parts are free from burrs or sharp edges which could damage conductor insulation; c) the correct manner of attachment of power supply conductors to lampholder terminals; d) the correct manner to ensure the identified conductor of the power supply cord is connected to the identified terminal of the lampholder employing where applicable; and e) the method of providing strain-relief to the power supply cord and, if a knot, the correct manner to apply it and to ensure it is in contact with a smooth surface.		N/A
13.5.9.2	When a through-cord switch is provided and is to be installed by the kit assembler, the complete assembly instruction of the switch shall be provided and include a detailed warning that the switch shall not be located in the identified conductor of the supply.		N/A
13.6	<i>Luminaires with batteries</i>		---
13.6.1	General		N/A
13.6.1.1	The requirements in Clause 13.6 are supplementary to other applicable requirements in this Standard and apply to luminaires provided with non-rechargeable and rechargeable batteries. The batteries may be replaceable by the user or non-replaceable. The use of the word "batteries" in Clause 13.6 refers to one or more batteries, or cells.		N/A
13.6.1.2	Rechargeable batteries shall comply with the applicable requirements of CSA C22.2 No. 62133-1 or CSA C22.2 No. 62133-2 in accordance with the chemistry of the batteries.		N/A
13.6.1.3	Batteries that are replaceable by the user shall be of the same physical size (e.g., AA, AAA, etc.). Batteries that are accessible with the use of ordinary tools may be considered to be replaceable by the user.		N/A

13.6.2	<i>Enclosure</i>		N/A
13.6.2.1	A luminaire shall provide suitable protection to prevent loose or damaged connections, access to uninsulated live parts above the risk of electric shock, misalignment, or reverse polarity during the use or replacement of a battery.		N/A
13.6.2.2	Polymeric enclosures shall have a flammability rating of minimum V-2.		N/A
13.6.3	Battery circuits		N/A
13.6.3.1	Non-rechargeable batteries shall be protected from charging currents by components having at least the equivalency of two diodes		N/A
13.6.3.2	Battery charging shall be accomplished with a circuit that has output characteristics compatible with that of the batteries		N/A
13.6.3.3	Transformers used to provide power to battery charging circuits shall comply with the applicable requirements of CSA C22.2 No. 66.1 and CSA C22.2 No. 66.3.		N/A
13.6.4	Tests		N/A
13.6.4.1	A luminaire with rechargeable batteries shall comply with the normal temperature test of Clause 15as specified in Clause 15.108.		N/A
13.6.4.2	A luminaire with rechargeable batteries shall comply with applicable tests of this Standard and specific tests for these devices specified in Clause 18.103.		N/A
13.6.4.3	A complete device with the charger part included shall comply with the drop test of Clause 17.108and the maximum tipping moment test of Clause 17.101.		N/A
13.6.5	Marking and instructions		N/A
13.6.5.1	A luminaire with rechargeable batteries intended to be replaced by the user as noted in Clause 13.6.1.3shall be marked in accordance with Item 10 of Table 20.101.1. A luminaire with non-rechargeable batteries intended to be replaced by the user as noted in Clause 13.6.1.3shall be marked with words or pictorial symbols for the type and size of batteries.		N/A
13.6.5.2	luminaire with rechargeable batteries shall provide in the instructions information regarding replacing batteries, disposing of a used battery, and battery charging. The instructions shall state the wording "Do not incinerate" or equivalent and that battery disposal should be in compliance with local regulations. The instructions shall include information regarding avoiding throwing the batteries in the garbage and the associated health risks to children of swallowing batteries (particularly button or coin batteries).		N/A
13.7	Battery-operated portable luminaires		N/A
13.7.1	General		N/A

13.7.1.1	Clause 13.7 applies to luminaires that are not required to be connected to a power source during normal use, but requires a non-integral power supply to charge batteries. This includes luminaires that are attached to clothing or to an apparatus, worn on the body, able to be held by one or two hands, or is freestanding.		N/A
13.7.1.2	Luminaires applicable to Clause 13.7 shall additionally comply with the requirements of Clauses 13.6.1 to 13.6.3.		N/A
13.7.2	Construction		N/A
13.7.2.1	Iron or steel that is used as current carrying parts shall comply with the corrosion protection requirements of Clause 5.6 of CSA C22.2 No. 250.0.		N/A
13.7.2.2	The means for battery charging shall be provided as a compatible and non-integral Class 2 power unit provided with a proprietary DC connection, an inductive power transfer means (wireless), or a USB communication connection.		N/A
13.7.3	Tests Battery-operated portable luminaires shall comply with the following tests: a) the temperature test of Clause 13.6.4.1; b) the tests for rechargeable batteries of Clause 18.103; c) the drop test for battery-operated portable luminaires of Clause 17.111; d) the battery power source test of Clause 18.105; and e) the exclusion of water test for battery-operated portable luminaires of Clause 17.112.		N/A
13.7.4	Markings		N/A
13.7.4.1	Battery-operated portable luminaires shall be marked in accordance with Clause 13.6.5.		N/A
13.7.4.2	A luminaire that complies with the exclusion of water test for battery-operated portable luminaires of Clause 17.112 shall be marked "IPXX", in accordance with the test method used.		N/A
13.7.4.3	A replaceable fuse, relied upon to limit the output current level in accordance with Clause 18.105, shall be marked adjacent to the fuse with the voltage and current rating.		N/A
13.8	Work lights		N/A
13.8.1	General A work light shall comply with the applicable requirements of this Standard unless amended or supplemented by Clause 13.8. A work light, including a non-rechargeable or rechargeable battery, shall comply with CSA C22.2 No. 250.5.		N/A
13.8.2	Mechanical construction		N/A

13.8.2.1	A guard shall be provided for work lights parts excluding the diffuser, which exceed 150 °C during the normal temperature test of Clause 13.8.4 and comply with the probe test of Clause 13.8.6.1. <i>Note: A guard might be required for the light source to achieve compliance with abnormal temperature tests.</i>		N/A
13.8.2.2	A guard is not required for work lights provided with integral generators where the lamp assembly is more than 1.5 m above the ground level. The work light shall be marked for outdoor use only in accordance with Item 2.4 of Table 20.1.1 of CSA C22.2 No. 250.0.		N/A
13.8.2.3	A guard shall require the use of tool to be removed or a combination of two types of motions.		N/A
13.8.2.4	A guard is not required to be attached at the factory if shipped as a single unit easy to attach with common tools and marked in accordance with Item 24 of Table 20.101.1 and provided with assembly instructions.		N/A
13.8.3	Electrical construction		N/A
13.8.3.1	A power supply cord not longer than 15 m and of a type specified in Table 6.9.101.4 shall be used for work lights rated maximum 1800 W.		N/A
13.8.3.2	A power supply cord not longer than 15 m and of a type specified in Table 6.9.101.4 shall be used for work lights rated over 1800 W.		N/A
13.8.3.3	A work light provided with a tip-over switch is exempt from the abnormal temperature test – horizontal of Clause 16.1.7.		N/A
13.8.3.4	Work lights intended for UV paint curing require a flexible cord with suffix “W”.		N/A
13.8.4	When tested per Clause 14, the maximum housing temperature shall not exceed 150 °C, and maximum housing temperature for work lights rated max 150 W shall not exceed 90 °C. Work lights shall comply with the requirements of adjacent surface temperatures in Clause 15.102.		N/A
13.8.5	Work lights shall be subjected to the Abnormal Temperature Test of Clause 16.		N/A
13.8.6	Mechanical tests.		N/A
13.8.6.1	A sphere of 51 mm diameter used as a probe shall not contact work light parts with temperatures exceeding 150 °C, other than the light source, with the guard in place.		N/A
13.8.6.2.1	A work light shall comply with the stability test of Clause 17.102 at 8°.		N/A
13.8.6.2.2	A work light that is not provided with a tip-over switch shall comply with the stability test at 33° and shall be marked for outdoor use only, in accordance with Item 2.4 of Table 20.1.1 of CSA C22.2 No. 250.0.		N/A
14	Environmental location luminaires — supplementary requirements		P

14.1.2	A luminaire shall be marked suitable for damp or wet location, as appropriate, and in accordance with Item 2.2 or 2.3 of Table 20.1.1 of CSA C 22.2 No 250.0 or the appropriate pictogram in Annex D of this Standard.		N/A
14.1.3	A dry location luminaire shall not be provided with any markings, instructions, or illustrations, either on the carton or with the luminaire, that imply that it is suitable for use, or depict its use, in a damp or wet location.		P
14.2.1.1	Damp and wet location luminaires shall have electrical insulation material with moisture-resistant properties equivalent to treated cellulosic or vulcanized fibre, phenolic, urea, or ceramic. Untreated fibre shall not be used.		N/A
14.2.1.2	The lampholder screwshells of the luminaire shall be copper, copper alloy of at least 80% copper, nickel alloy, or stainless steel.		N/A
14.3.1.1	A luminaire intended for use in damp locations that complies with the requirements of Clauses 14.2 and 14.3, as applicable, shall be marked in accordance with Table 20.1.1, Item 2.2.		N/A
14.3.1.2	A damp location luminaire shall not be provided with any markings, instructions, or illustrations, on the carton or with the luminaire, that imply that it is suitable for use, or depict its use, in a wet location.		N/A
14.4.1.1	A luminaire shall be constructed to prevent the accumulation of water on live parts, electrical components, or conductors not identified for use in contact with water.		N/A
14.4.2.1	Copper, aluminum, alloys of copper and aluminum, stainless steel, and similar materials having inherent resistance to atmospheric corrosion may be used without additional corrosion protection.		N/A
14.4.2.2	All exposed exterior and interior surfaces of ferrous metal parts shall be protected by one of the following: (a) a coating of nonferrous metal applied by the hot dip process method; (b) a plating of nonferrous metal applied either by electro-deposition or by chemical means; (c) a coating of vitreous enamel; (d) baked paint, or similar type of coating; or (e) air-dry paint that complies with the paint adhesion test of Clause 17.5.12.		N/A
14.4.2.3	The requirements of Clause 14.4.2.2 shall not apply to the following: (a) bearings, sliding surfaces of a hinge or shaft, hinge pins, and similar parts located on the exterior of enclosures where such protection is not practicable; and (b) decorative parts.		N/A
14.4.2.4	Edges, punched holes, and spot welds in prefinished steel, and hanger locations for painting or plating in ferrous metal shall not require any corrosion protection.		N/A
14.4.2.5	Welds in ferrous metals shall be painted with at least one coat of outdoor paint, and spot welds in galvanized steel shall be painted with at least one coat of paint.		N/A

14.4.2.6	Vitreous enamels may be used as a protective coating for ferrous sheet metal having a minimum thickness of 0.6 mm (0.025 in).		N/A
14.4.3.1	A luminaire that permits water to enter the luminaire during the rain test of Clause 17.5.2 or the sprinkler test of Clause 17.5.3 shall be provided with a drain hole.		N/A
14.4.3.2	Drain holes, if provided, shall be located in the surface most likely to prevent the accumulation of water.		N/A
14.4.3.3	Drain holes shall permit the insertion of a 3.2 mm (0.125 in) diameter rod.		N/A
14.4.4.1	A polymeric water shield shall be of a UV-rated material or shall comply with the UV exposure conditioning test of Clause 17.5.5.		N/A
14.4.4.2	A polymeric water shield that operates at a temperature higher than 65 °C, as determined by the normal temperature test of Clause 14, and that does not have a recognized temperature rating for the measured temperature shall comply with the thermal conditioning test of Clause 17.5.6.		N/A
14.4.4.4	A wooden water shield less than 13 mm (0.5 in) thick shall be subjected to the impact conditioning test of Clause 17.5.7 and shall then comply with the applicable rain, sprinkler, or immersion test.		N/A
14.4.5.1	A gasket or bushing required to prevent water from entering the enclosure shall be secured to prevent its loosening during user maintenance by a clip, clamping ring, adhesive, or other mechanical means.		N/A
14.4.5.2	A gasket or bushing shall be made of material as specified in Table 15.1.2, Item 20, and shall have a temperature rating suitable for the operating temperature, as determined by the normal temperature test of Clause 14, or shall withstand: (a) the luminaire gasket assembly accelerated aging test of Clause 17.5.8, with the gasket or bushing installed as intended in the luminaire; or (b) the gasket accelerated aging test of Clause 17.5.9 or 17.5.10, for the gasket or bushing only.		N/A
14.4.5.3	The adhesive that is used to secure a gasket or bushing required to prevent water from entering the enclosure and that is likely to be exposed, or not compressed as intended, during user maintenance, shall comply with: (a) the gasket adhesion test of Clause 17.5.11; or (b) the luminaire gasket assembly accelerated aging test of Clause 17.5.8, with the gasket installed in the luminaire.		N/A
14.4.6.1	Exposed, single-pin, or recessed double-contact fluorescent lampholders shall be of the weatherproof type.		N/A
14.4.8.1	A luminaire marked suitable for wet location shall comply with the rain test of Clause 6.5.2 and the sprinkler test of Clause 6.5.3 of CSA C22.2 No 250.0. No rain or sprinkler test is required when it is readily apparent by the luminaire design that no water will enter the enclosure if the luminaire is subjected to the above tests		N/A

14.4.8.2	A luminaire intended for wet or damp locations shall comply with the humidity test of Clause 17.103.		P
14.4.9.1	A luminaire that is intended for use in wet locations and that complies with the requirements of Clause 13 shall be marked in accordance with Table 20.1.1, Item 2.3.		N/A
14.4.9.2	A luminaire with adjustable mounting positions that is limited or restricted to a particular position to comply with the applicable tests shall be marked to indicate the limits of adjustment or the mounting position, in accordance with Table 20.1.1, Item 1.23.		N/A
14.4.9.3	Installation instructions shall be provided for luminaires that require specific methods for sealing the mounting surface or specific fittings for supply connections, in accordance with Table 20.1.1, Item 1.33.		N/A
14.4.9.101	Portable luminaires intended for use in a damp or wet location shall be marked in accordance with Item 9 of Table 20.101.1.		N/A
15	Normal temperature tests		P
15.108	Normal temperature test for luminaires with rechargeable batteries		N/A
15.108.1	The normal temperature test shall be conducted while the luminaire is operated through two cycles of charging and discharging. During the discharge cycle, the luminaire shall be operated while disconnected from any power source until the light source is no longer illuminated. The luminaire shall then be connected to the intended source of supply and allowed to charge until the maximum nominal battery voltage is reached and a minimum of 7 h has elapsed.		N/A
15.108.2	The surface temperature of the battery shall not exceed the battery manufacturer's specification or the maximum temperature of any materials in contact with the battery.		N/A
16	Abnormal temperature tests		N/A
16.1	Abnormal temperature test for free standing luminaires		N/A
16.2	Torchieres		N/A
16.3	Abnormal-temperature test for surface-mounted cabinet luminaires		N/A
16.3.6	The test voltage shall be 127 V for 120 V-rated cabinet lights with integral or remote power supplies.		N/A
16.4	Abnormal-temperature test for recess-mounted cabinet lights (extra low voltage system)		N/A
16.4.9	The test voltage shall be a) 127 V for 120 V rated cabinet lights and cabinet lights with integral power supplies; and b) 5% higher lamp voltage rating for cabinet lights in an extra low voltage system where the power supply is not integral with the cabinet light.		N/A

16.5	Abnormal-temperature test for under-cabinet lights		N/A
17	Mechanical tests		N/A
17.1	Barrier strength		N/A
17.2	Metal thickness equivalency		N/A
17.3	Flame test		N/A
17.4	Mold stress relief		P
17.5	Wet locations		N/A
17.6	Hot-wire ignition (HWI)		N/A
17.7	Glow-wire end product.		P
17.8	High-current arc ignition (HAI).		N/A
17.9	End-product arc resistance.		N/A
17.10	Polymeric support.		N/A
17.11	Metallized polymeric parts coating adhesion		N/A
17.12	Flaming oil		N/A
17.13	Conduit knockout and twistout		N/A
17.14	Self-threading screw torque		N/A
17.15	Loading Test		N/A
17.16	Snap-in or tab-mounted parts pull test without conduit opening		N/A
17.17	Snap-in or tab-mounted parts pull test with conduit opening		N/A
17.18	Suspended-ceiling luminaires – security of clips		N/A
17.19	Movable joint rotation		N/A
17.20	Movable joint torsion and pull		P
17.21	Strain relief		P
17.22	Tempered glass impact.		N/A
17.23	Glass support adhesive		N/A
17.24	Glass supported by friction or adhesive		N/A
17.25	Horizontal burning flame		N/A
17.26	Vertical burning flame		N/A
17.27	Needle flame		N/A
17.28	Lamp containment barrier thermal shock		N/A
17.29	Polymeric lamp containment barrier melt-through		N/A
17.30	Polymeric connector loading		N/A
17.31	Junction box rigidity		N/A
17.32	Splice inspection		N/A
17.33	Lampholder mounting torque		N/A
17.34	Lampholder pull		N/A
17.35	Lampholder mounting bracket stop test		N/A
17.36	(MEX) Thermal shock		N/A
17.37	(MEX) Resistances to load		N/A

17.38	Lampholder lead pull test		N/A
17.39	Ground-screw assembly strength		N/A
17.40	Cable pull test		N/A
17.41	Polymeric impact		P
17.101	Maximum tipping moment		N/A
17.102	Stability		P
17.103	Humidity		N/A
17.104	Drop test for extension handlamps		N/A
17.105	Abnormal extension handlamp enclosure integrity		N/A
17.105.1	An extension hand lamp shall be subjected to the following tests: a) drop test of Clause 17.104; immediately following the drop test, be subjected to the impact test of Clause 18.2.3 or 18.4.1 of CSA C22.2 No. 250.0; and c) immediately following the impact test of (b) be subjected to the exclusion of water test of Clause 17.106.		N/A
17.106	Exclusion of water test		N/A
17.107	Deflection test		N/A
17.108	Drop test		N/A
17.109	Accelerated aging		N/A
17.110	Mounting security test		N/A
17.111	Drop test for battery-operated portable luminaires		N/A
17.112	Exclusion of water test for battery-operated portable luminaires		N/A
18	Electrical tests		P
18.1	Dielectric voltage-withstand		P
18.2	Bond impedance		N/A
18.101	Leakage current		N/A
18.102	Rating for extension handlamps		N/A
18.103	Tests for rechargeable batteries		N/A
18.103.1	Charging rate		N/A
18.103.2	Battery charging circuit abnormal fault tests		N/A
18.104	Insulation equivalence		N/A
18.105	Battery power source test		N/A
Annex I	Factory production tests		Not required
I.1	Dielectric voltage-withstand		Not required
I.2	Grounding continuity		N/A

I.3	Glass support		N/A
I.4	Strain relief		Not required
I.5	Polarity		Not required
I.6	Test records		Not required
20			
20	Marking		P
20.1.1	A luminaire shall be legibly marked in accordance with Table 20.1.1 using one or more of the following methods: (a) lettering on a pressure-sensitive label; (b) paint stencilled lettering; (c) ink-stamped machine lettering; (d) ink-hand-stamped lettering; (e) indelibly printed lettering; (f) die-stamped lettering; (g) embossed lettering; (h) moulded or cast lettering; and (i) etched lettering in metal.		P
20.1.2	A pictogram in accordance with Annex D may be used as a substitute for the corresponding text of Table 20.1.1, and shall be the subject of special investigation.		N/A
20.1.3	A marking shall be of the minimum size (S _{__}) and in the location (L _{__}) shown in the "Format" column of Table 20.1.1 and as defined in Tables 20.1.2 and 20.1.3.		P
20.1.4	"Verbatim" in the "Text" column of Table 20.1.1 indicates that the marking shall consist of only the exact words shown or a marking including these words and conveying the original intent. Alternative wording for other markings in the Table may be used, subject to evaluation.		P
20.1.5	The characters of embossed, moulded, or cast lettering, either in or out, shall be a minimum of 0.25 mm (0.010 in) in depth.		N/A
20.1.6	When a permanent-type label (Type P) is required in accordance with Table 20.1.3, paint stencilled, inkstamped, and indelibly printed lettering shall be legible as determined by the test of Clause 20.3. The stamping device shall provide consistent and even pressure, regardless of the operator.		P
20.1.7	Pressure-sensitive labels and nameplates of the permanent type (Type P) that are secured by adhesive shall be in accordance with CSA C22.2 No. 0.15 or UL 969.		P
20.1.8	The adhesive of pressure-sensitive labels and nameplates of the permanent type (Type P) shall be suitable for the mounting surface, temperature, and environment.		P

20.2.1	<p>A luminaire shall be marked with the following:</p> <ul style="list-style-type: none"> (a) manufacturer's identification, in accordance with Table 20.1.1, Item 4.1; (b) date code of at least the month and year of manufacture, in accordance with Table 20.1.1, Item 4.3; (c) factory identification, if more than one location, in accordance with Table 20.1.1, Item 4.6; and (d) other markings, as required. 		P
20.2.2	<p>The following luminaire types shall be marked with catalogue number, model number, series number, or other similar designation in accordance with Item 4.2 of Table 20.1.1: of CSA C22.2 No. 250.0:</p> <ul style="list-style-type: none"> a) amateur movie lights; b) aquarium; c) cabinet (including under-cabinet); d) clamp type; e) colour wheels; f) display case type; g) drafting type; h) electronic (flashing, touch-control) types; i) extension handlamps; j) extra low voltage portable luminaires, supplied from a remote power source; k) fibre-optic types; l) flood lights; m) counterfeit detectors; n) hospital type; o) illuminated forms or shapes (figurines, fire logs, terrestrial globes, plaques, etc.); p) kits, portable luminaires; q) machine-shop lamps (e.g., illuminated shields for use with electric grinders); r) make-up mirrors; s) office furnishing luminaires; t) planter lights; u) paint curing types; v) luminaires with rechargeable batteries; w) work lamps; x) outdoor types; and y) ballasted, transformer or driver operated types. 		N/A
20.2.3	<p>A luminaire that employs a lamp control device, motor, or frequency sensitive equipment such as a self ballasted lamp shall be marked with the input rating in volts, hertz, and total amperes or watts. In accordance with Item 1.3 of Table 20.1.1 of CSA C22.2 No. 250.0, unless</p> <ul style="list-style-type: none"> a) the required marking is shown on the lamp control device, motor or frequency sensitive equipment and is readily visible; and b) the luminaire is supplied by a Class 2 or limited power source (LPS). 		N/A

20.2.4	Where parts of a luminaire, except for lenses, diffusers, and decorative parts, are shipped in more than one package, each package shall be marked with the following: (a) the manufacturer's identification, in accordance with Table 20.1.1, Item 4.1; and (b) part numbers, group numbers, descriptive designation, or other identification, in accordance with Table 20.1.1, Item 1.8.		N/A
20.2.5	In Canada, bilingual marking is the jurisdiction of Canadian provincial regulatory authorities, which can require marking to also be in French, as shown in Annex B.		P
20.3.1	Markings that are ink stamped or imprinted on an acceptable type label shall be dried to room temperature for at least 5 days, after which they shall be given one wipe with a cloth dampened with water, and then a second wipe with a cloth dampened with mineral spirits, without becoming illegible.		N/A
20.4.1	When the mounting position of a luminaire is not visually evident and it is required to be mounted or oriented in a particular position to comply with this Standard, a marking shall be provided to instruct the installer, in accordance with Table 20.1.1, Item 2.13.		N/A
20.4.2	A luminaire that has a mounting surface temperature of more than 90 °C, but not more than 150 °C, during the normal temperature test shall be marked for installation on a noncombustible surface only, in accordance with Table 20.1.1, Item 2.6.		N/A
20.5.1	Wiring instructions that specify the proper method of connecting the grounding means and maintaining polarity shall be included with the luminaire in a manner that will require the installer to handle the instructions during installation, or the luminaire carton shall be marked to require installation by a person familiar with the construction and operation of the product and the hazards involved, in accordance with Table 20.1.1, Item 1.31		N/A

Test case verdicts

Test case does not apply to the test object : N/A (Not Applicable)

Test item does meet the requirement: P (Pass)

Test item does not meet the requirement ...: F (Fail)

Testing Instructions of standards only: Info (Information Only)

Appendix 1: Critical components information				
Component Name	Manufacturer/ trademark	Type / model	Technical data	Mark(s) of conformity
Shade-1	Various	Various	Consisted of fabric and metal frame, open top/open bottom design. For models CX00021, CX00031BS, CX00003WL, CX00028-F, CX00026.	NR
Shade-2	Various	Various	Steel. min. 0.51mm thick. For models AF49481BK, CX00020.	NR
Shade-3	Various	Various	Plastic, rated HB, min. 90°C, min. 0.8mm thick. For models AF36699SBK, CX00002BK, HD00048BK, CX00004-SN.	cURus
Shade-4	Various	Various	Glass, min. 2.11 mm thick. For models CX00006BS, CX00006BW, CX00029, CX00038SN, HD00039BW, CX00007BW, F9007.	NR
Shade-5	Various	Various	Consisted of oil paper and metal frame, open top/open bottom design. For models CX00015, CX00016, CX00017.	NR
Power Supply Cord-1	Various	Various	Rated 15A, 125Vac, 18AWGx2C flexible cord with rating: 105°C, 300V. Type SPT-2 or SPT-2-B. Molded with 1-15P polarized plug. Power-supply cord shall be at least 5 feet long measured from the point where the cord emerges from the body of the lamp to the face of the attachment plug. For all models except AF49481BK.	cULus or cETLus
Power Supply Cord-2	Various	Various	Rated 15A, 125Vac, 16AWGx2C flexible cord with rating: 105°C, 300V. Type SPT-2 or SPT-2-B. Molded with 1-15P polarized plug. Power-supply cord shall be at least 5 feet long measured from the point where the cord emerges from the body of the lamp to the face of the attachment plug. For models AF49481BK.	cULus or cETLus
Bushing	Various	Various	Plastic, non-rubber type, 1.2mm thickness. Physically fitted to metal opening to protect wires. For models CX00021, AF49481BK, AF36699SBK, CX00002BK, CX00006BS, CX00006BW, CX00029, CX00031BS, CX00003WL, CX00038SN, HD00039BW, HD00048BK, CX00028-F, CX00026, CX00007BW, CX00004-SN, CX00020, F9007.	NR
Metal Tubing	Various	Various	Plated or painted steel, measured min. 1.0 mm thick. For all models.	NR

Plastic enclosure	Hanwha TotalEnergies Petrochemical Co Ltd	FH44(-)	PP, rated V-0, 115°C, measured min. 1.5mm thick. For model AF49481BK.	cURus
Receptacle	LECI Electronics Co., LTD	DB-F-M2	Rated 125Vac, 15A. Secured to base by snap-in. For model AF49481BK.	cETLus Recognized
USB Driver	Cjing Lighting Co., Ltd.	CJ009	Class 2 power, rated input: 120Vac, 60Hz, 0.16A; output: 5Vdc, 1A. For model AF49481BK.	cETLus Recognized
Wire connector	Various	Various	Closed-end connector or Twist-on connector, Rated 300V, min. 105°C, Suitable for 14-24 AWG wire. For model AF49481BK, CX00002BK, HD00039BW, CX00004-SN, F9007.	cULus
Heat-shrinkable tubing	Various	Various	Min. 105°C, min. 300V, VW-1, Used to cover the wire connectors. For model AF49481BK, CX00002BK, HD00039BW, CX00004-SN, F9007.	cURus
Internal wire -1	Various	SPT-1	18AWG x 2C, 300V, 105°C, for connecting to lampholder. For model AF49481BK.	cULus or cETLus
	Various	Various	AWM, 16AWG x 2C, 300V, 105°C, for connecting to receptacle. For model AF49481BK.	cURus or cETLus recognized
Internal wire -2	Various	SPT-1	18AWG x 2C, 300V, 105°C, for connecting to lampholder. For models CX00002BK, HD00039BW, CX00004-SN, F9007.	cULus or cETLus
	Various	Various	AWM, 18AWG x 2C, 300V, 105°C, for connecting to lampholder. For model CX00002BK, HD00039BW, CX00004-SN, F9007.	cURus or cETLus recognized
Wire connector	Various	Various	Closed-end connector or Twist-on connector, Rated 300V, min. 105°C, Suitable for 14-24 AWG wire. For model AF49481BK, CX00002BK, HD00039BW, CX00004-SN, F9007.	cULus
Fiber glass sleeving	Various	Various	Silicone-coated fiber glass sleeving. 0.25mm thick min. Used to protect wire from sharp edges. For model AF49481BK, AF36699SBK, CX00031BS, HD00048BK, CX00026, CX00020.	NR
Switch-1	Guangdong Ojun Technology Co., Ltd	8s.317	Foot switch, rated 3A, 125Vac, For models CX00015, CX00016, CX00017, CX00031BS, CX00026.	cURus
Switch-2	TING SHEN INDUSTRIAL CO LTD	TS-09BT	Rated 6A, 125Vac. For model HD00039BW.	cURus

Switch-3	Huizhou Shang Jun Electronics Co Ltd	SJ30	Rated 6A,125Vac or 3A, 250Vac, For model CX00004-SN.	cURus
Metal enclosure / Lampholder cup	Various	Various	Steel. min. 0.51mm thick. For models AF36699SBK, CX00002BK, CX00006BS, CX00029, CX00031BS, CX00006BW, HD00039BW, HD00048BK, CX00026, CX00007BW, CX00004-SN, CX00020.	NR
External cord	Various	SPT-2	18AWG x 2C, 300V, 105°C, for connecting to lampholder. For models CX00015, CX00016, CX00017.	cULus or cETLus
Metal frame	Various	Various	Steel, min. 0.5mm thick. Use to secured the lampholder to metal tubing. For models CX00015, CX00016, CX00017.	NR
Bottom cover	FORMOSA CHEMICALS & FIBRE CORP PLASTICS DIV	AC111(*)	PC, min. V-2, min. 80°C, min. thickness 0.8mm. Secured to enclosure by snap fitting. For model HD00039BW.	cURus
Lampholder-1	Various	Various	Medium (E26) base, Phenolic body, rated min. 250V, min. 250W, Phenolic body with outer thread. Integral with a pull chain switch and strain relief device. For models CX00021, CX00003WL.	cULus or cETLus
Lampholder-2	Various	Various	Medium (E26) base, Phenolic body, rated min. 250V, min. 250W, Phenolic body without outer thread. Integral with a rotary switch. For model AF49481BK.	cULus or cETLus
Lampholder-3	Various	Various	Medium (E26) base, Phenolic body, rated min. 250V, min. 250W, Phenolic body with outer thread. Integral with a rotary switch and strain relief device. For model AF36699SBK, CX00006BS, CX00006BW, CX00029, CX00038SN, HD00048BK, CX00028-F, CX00007BW.	cULus or cETLus
Lampholder-4	Various	Various	Medium (E26) base, Phenolic body, rated min. 250V, min. 250W, Phenolic body with outer thread. Integral with a rotary switch. For model CX00002BK.	cULus or cETLus
Lampholder-5	Various	Various	Medium (E26) base, Phenolic body with outer thread, rated min. 250V, min. 250W, For models CX00015, CX00016, CX00017, CX00031BS HD00039BW, CX00026, CX00004-SN.	cULus or cETLus
Lampholder-6	Various	Various	Medium (E26) base, Phenolic body, rated min. 250V, min. 250W, Phenolic body without outer thread. Integral with a rotary switch and strain relief device. For model CX00020.	cULus or cETLus

Lampholder-7	Various	Various	Medium (E26) base, Phenolic body, rated min. 250V, min. 250W, Phenolic body without outer thread. Integral with a pull chain switch. For models F9007.	cULus or cETLus
Strain Relief Device-1	Various	Various	Provided with a knot on flexible cord and located in position. For model AF49481BK, CX00002BK, CX00015, CX00016, CX00017, CX00031BS, HD00039BW, CX00026, CX00004-SN, F9007.	NR
Strain Relief Device-2	Various	Various	Plastic, rated min. HB, Provided with a Plastic screw, M5.5, measured 7mm long. For models CX00015, CX00016, CX00017.	NR
Marking Label (not shown)	Various	Various	Min. 100°C when attached on metal or plastic surface. Complied with UL 969 marking and labelling system. For all models.	cURus

Appendix 2: Marking		
<p>Markings: The product is marked on a labelling system as described in Marking Label of Appendix 1 as follows:</p> <ul style="list-style-type: none"> - Applicant's name - Model number - Electrical ratings (volts, wattage & frequency) - Date of manufacture <p>Cautionary Markings:</p>		
	Model No.	Item
	All models	1.1, 1.2, 1.3
	AF49481BK, T001B, AF49481WH, T001W	1.4, 1.5, 1.6
	CX00029, F015, CX00029BS, F0029BS	1.6
Item	Marking	Format
1.1	HOUSEHOLD USE POUR L'USAGE À LA MAISON	Verbatim, S24-L2
1.2	CAUTION: TO REDUCE THE RISK OF FIRE - MAX ___ WATTS TYPE ___ or MAX ___ W TYPE ___ ATTENTION - RISQUE D'INCENDIE - MAX ___ WATTS TYPE ___ ou MAX ___ W TYPE ___	Form A-3 & "MAX" shall be at least 4.8mm high & The lamp type shall be indicated by a drawing
1.3	MAX ___ WATTS TYPE SBLED MAX ___ WATTS TYPE SBCFL MAX ___ WATTS TYPE SBLED MAX ___ WATTS TYPE SBCFL	Form A-3 & S32-L1 for "MAX" & S24-L1 for remainder of marking test
1.4	120V, MAX 8A	On an exterior surface, near the receptacle, normally visible, minimum letter height 3.2mm
1.5	5VDC, MAX 1A	On an exterior surface, near the USB terminal, normally visible, minimum letter height 3.2mm
1.6	WARNING - Risk of tip over, Max. 1.5 lb. Load Avertissement - risque de basculement, charge maximale 1.5 lb	Form A-1

Appendix 3: Product Photos

Photo 1 - External view of model CX00021



Photo 2 - External view of model CX00021-BS



Photo 3 - Bottom view of model CX00021



Photo 4 - Internal view of model CX00021, CX00003WL



Photo 5 - Lampholder view of model CX00021



Photo 6 - External view of model AF49481BK



Photo 7 - External view of model AF49481WH



Photo 8 - Bottom view of model AF49481BK
(Remark: Connector will fully cover by heat-shrinkable tubing)



Photo 9 - Internal view of model AF49481BK

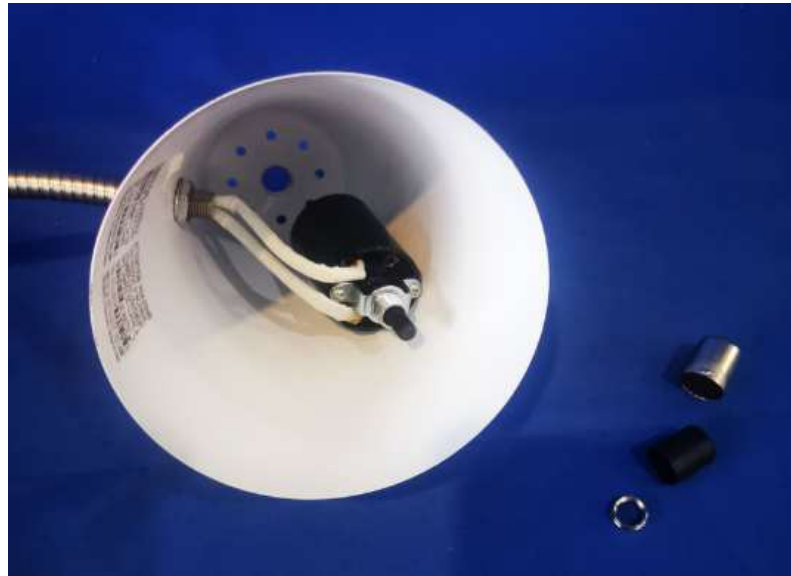


Photo 10 - External view of model AF36699SBK



Photo 11 - External view of model AF36699SSN



Photo 12 - Bottom view of model AF36699SBK

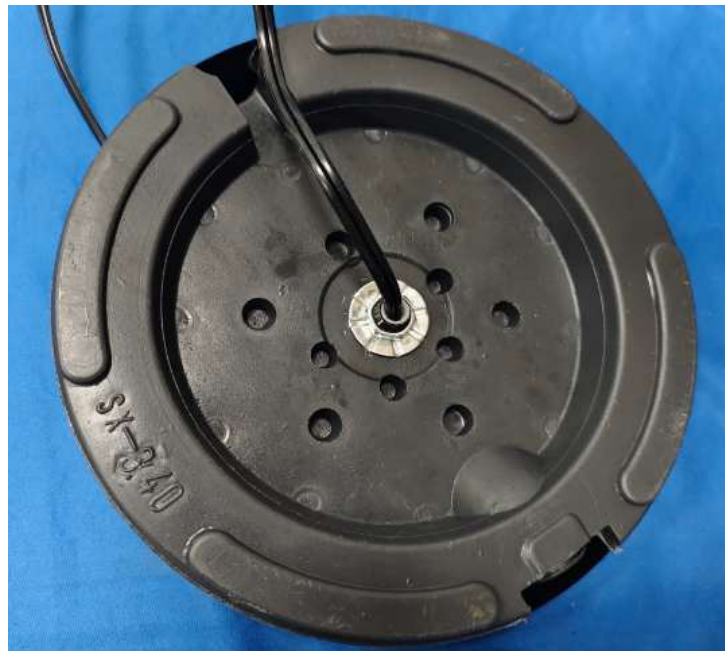


Photo 13 – Internal view of model AF36699SBK, also represents model HD00048BK.

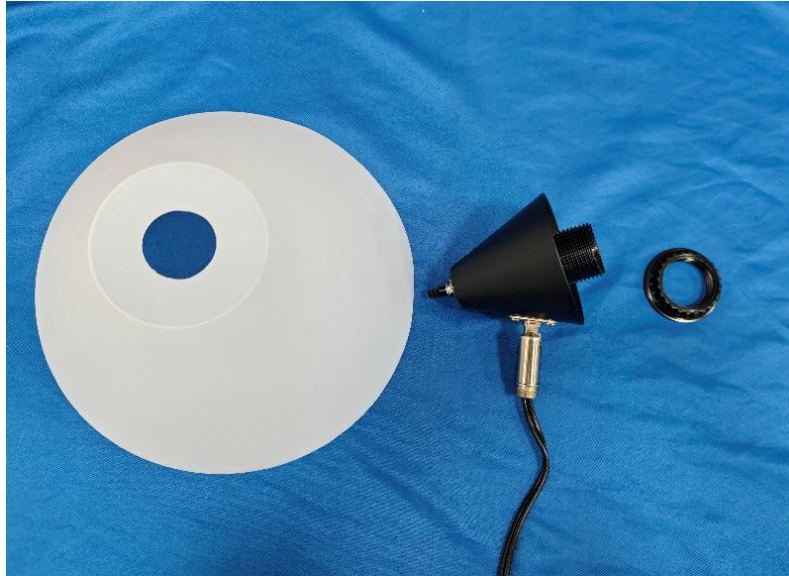


Photo 14 - External view of model CX00002BK



Photo 15 - External view of model CX00002SL



Photo 16 - Upper lampholder view of model CX00002BK

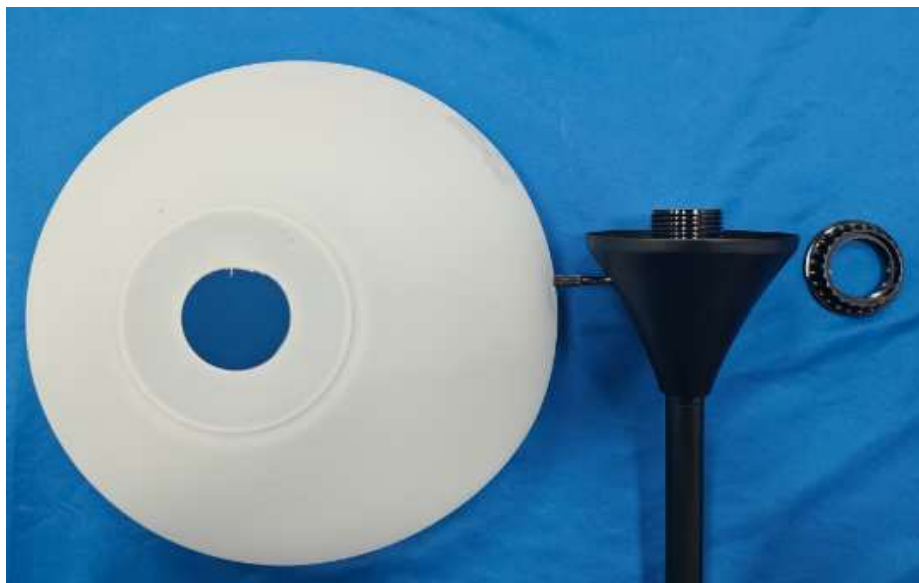


Photo 17 - Downward lampholder view of model CX00002BK.



Photo 18 – Internal view of model CX00002BK, also represents model F9007.
(Remark: Connector will fully cover by heat-shrinkable tubing)



Photo 19 - External view of model CX00006BS



Photo 20 - External view of model CX00006BW



Photo 21 - Internal view of model CX00006BW, also represents models CX00006BS, CX00029, CX00038SN, CX00007BW

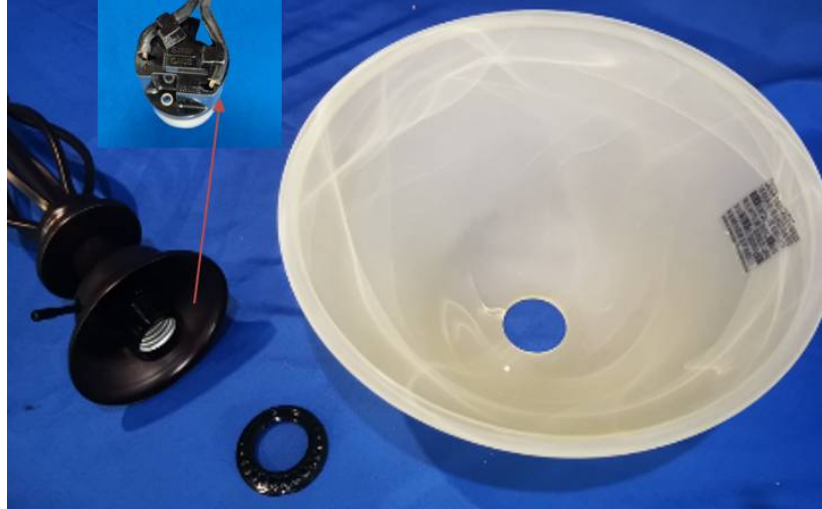


Photo 22 - External view of model CX00015



Photo 23 - External view of model CX00016



Photo 24 - External view of model CX00017



Photo 25 - Bottom view of model CX00016.

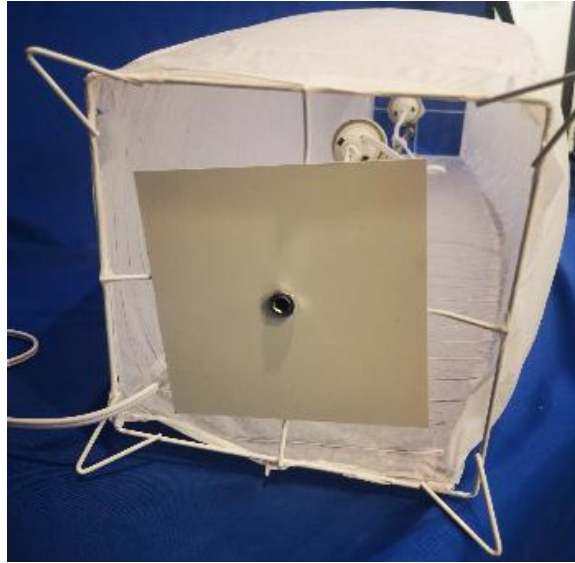


Photo 26 - Internal view of model CX00017, also represents for models CX00015, CX00016.

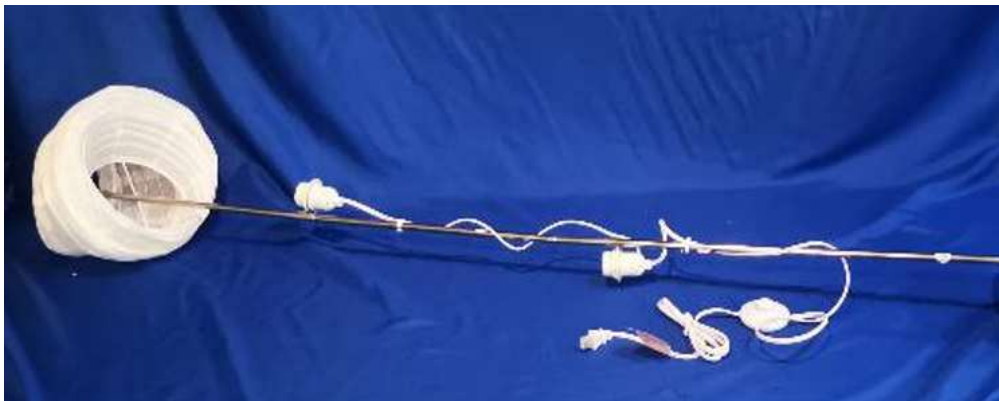


Photo 27 - Lampholder view of model CX00017, also represents for models CX00015, CX00016.

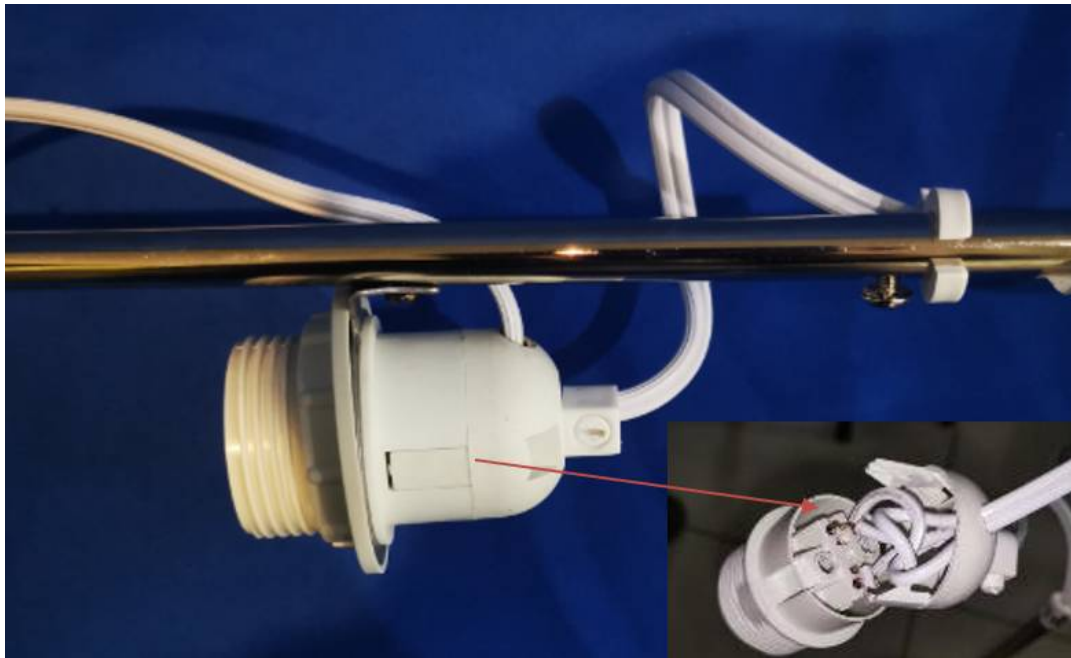


Photo 28 - External view of model CX00029



Photo 29 - External view of model CX00029BS



Photo 30 - External view of model CX00031BS



Photo 31 - External view of model CX00031BW



Photo 32 - Internal view of model CX00031BS

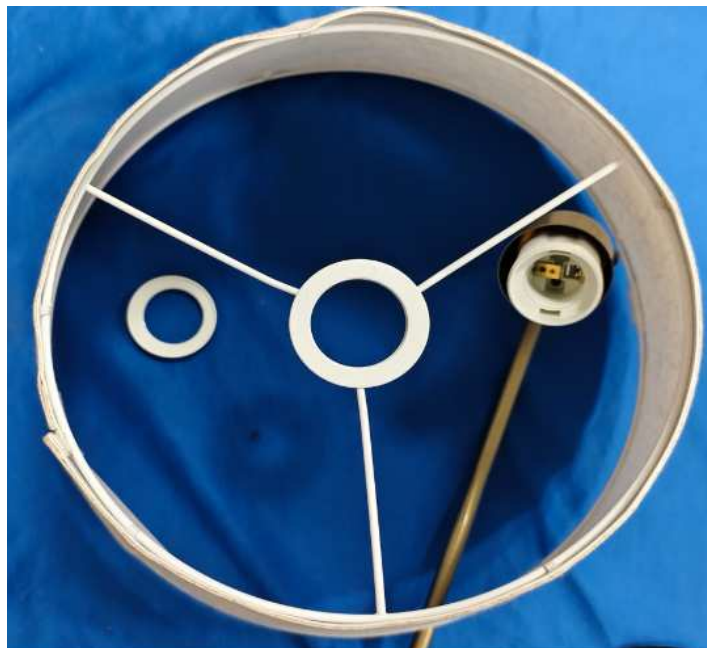


Photo 33 - External view of model CX00003WL



Photo 34 - External view of model CX00038SN



Photo 35 - External view of model CX00038BW

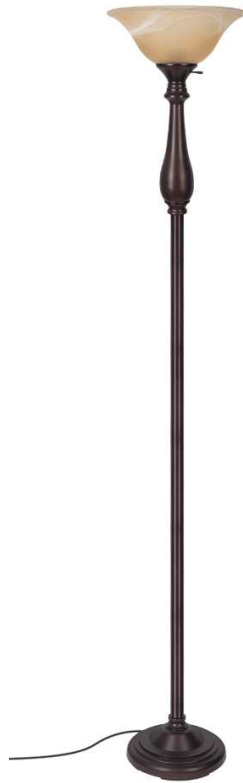


Photo 36 - External view of model HD00039BW



Photo 37 - External view of model HD00039BS



Photo 38 - Bottom view of model HD00039BW
(Remark: Connector will fully cover by heat-shrinkable tubing)



Photo 39 - Lampholder view of model HD00039BW



Photo 40 - External view of model HD00048BK



Photo 41 - External view of model HD00048SN



Photo 42 - External view of model CX00028-F



Photo 43 - External view of model CX00028S-F



Photo 44 - Internal view of model CX00028-F



Photo 45 - External view of model CX00026.



Photo 46 - Internal view of model CX00026.

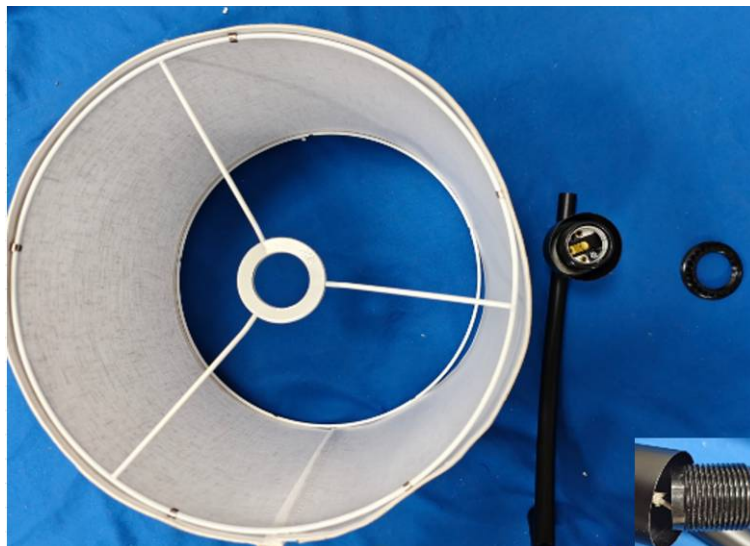


Photo 47 - External view of model CX00007BW



Photo 48 - External view of model CX00007BS



Photo 49 - External view of model CX00004-SN



Photo 50 - External view of model CX00004-BK



Photo 51 - External view of model CX00004-SL



Photo 52 - External view of model CX00004-GO



Photo 53 - Internal view of model CX00004-SN
(Remark: Connector will fully cover by heat-shrinkable tubing)



Photo 54 - Internal view of model CX00004-SN



Photo 55 - External view of model CX00020



Photo 56 - Internal view of model CX00020

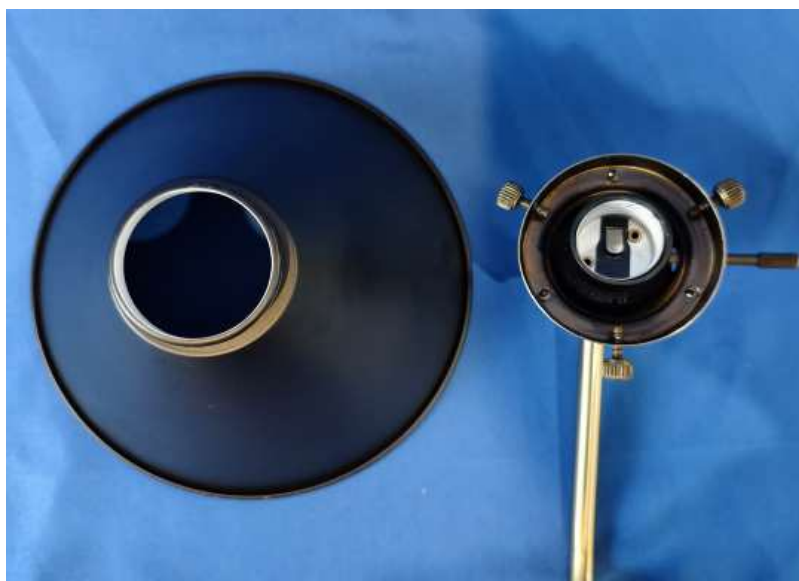


Photo 57 - External view of model F9007



Photo 58 - Lampholder view of model F9007



***** End of report *****